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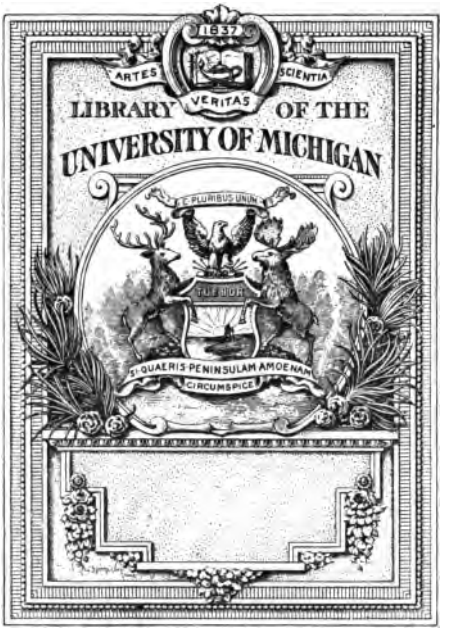
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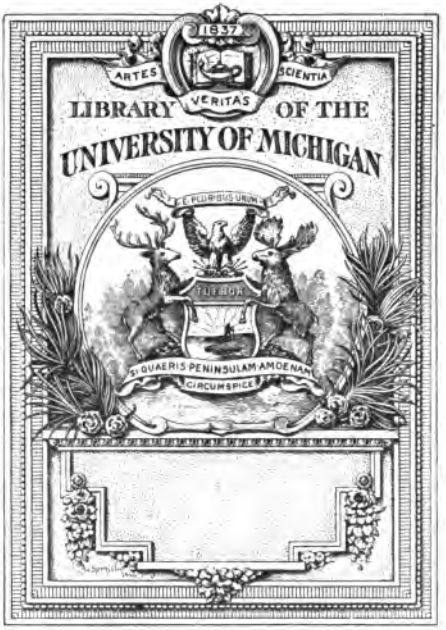
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The Council think it proper to state that the authors of the several communications are alone responsible for the statements, reasonings, and opinions contained in their respective papers.

August 1870.

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1869 LAWRENCE, JAMES E.: Wandsworth.

Orig Memb LAWSON, GEORGE, Assistant Surgeon to the Middlesex Hospital and Surgeon to the Royal London Ophthalmic Hospital: 12 Harley Street.

1868 LAWSON, HENRY, M.D., Assistant Physician to, and Lecturer on Physiology at St. Mary's Hospital: 8 Nottingham Place.

1869 LEACH, HARRY, Resident Medical Officer, Seamen's Hospital Ship 'Dreadnought.'

Orig Memb LEE, HENRY (V.P.), Surgeon to, and Lecturer on Pathology at St. George's Hospital: 9 Savile Row.

ELECTED

1869 LEGG, J. WICKHAM, M.D., Casualty Physician to St. Bartholomew's Hospital: 11 South Street, Park Lane.

1868 *LITTLE, LOUIS STROMEYER.

Orig Memb MACKENZIE, MORELL, M.D., Assistant Physician to and Lecturer on Physiology at the London Hospital, and Physician to the Hospital for Diseases of the Throat: 13 Weymouth Street, Portland Place.

Orig Memb MARCET, WILLIAM, M.D., F.R.S., Assistant Physician to the Hospital for Consumption and Diseases of the Chest: 48 Harley Street. (C. 1867–70.)

1868 MARSH, F. HOWARD, Assistant Surgeon to the Hospital for Sick Children: 19A Golden Square.

Orig Memb MAUNDER, CHARLES F. (C.), Surgeon to, and Demonstrator of Operative Surgery at the London Hospital: 29 New Broad Street.

1868 MAY, EDWARD HOOPER, M.D.: High Cross, Tottenham, Middlesex.

1868 MEADOWS, ALFRED, M.D., Physician to the Hospital for Women, and Physician Accoucheur to the General Lying-in Hospital: 27 George Street, Hanover Square.

Orig Memb MOXON, WALTER, M.D., F.L.S., Assistant Physician to, and Lecturer on Pathology, and Demonstrator of Morbid Anatomy at Guy's Hospital: 6 Finsbury Circus.

Orig Memb MURCHISON, CHARLES, M.D., F.R.S., LL.D., Consulting Physician to the London Fever Hospital; Physician to, and Lecturer on Medicine at the Middlesex Hospital: 79 Wimpole Street. (C. 1867–70.)

1868 MURRAY, JOHN, M.D., Medical Registrar to the Middlesex Hospital: 40 Bryanston Street.

1868 MYERS, ARTHUR BOWEN RICHARDS, Assistant Surgeon to the Coldstream Guards.

Orig Memb NORTON, ARTHUR TREHERNE, Assistant Surgeon to, and Lecturer on Anatomy at St. Mary's Hospital: 6 Wimpole Street.

Orig Memb NUNN, THOMAS WILLIAM, Surgeon to, and Lecturer on Operative Surgery at the Middlesex Hospital: 8 Stratford Place.

Orig Memb OGLE, JOHN WILLIAM, M.D., Examiner in Anatomy and Physiology to the Royal College of Physicians; Physician to, and Lecturer on Pathology at St. George's Hospital: 13 Upper Brook Street. (C. 1867–8.)

1868 *OGLE, WILLIAM, M.D., Physician to the Derbyshire General Infirmary: Derby.

Elected	
1869	*Oldfield, E., M.D.: Surinam.
1868	Oppert, Francis, M.D., Senior Physician to the City Dispensary: 10 Charlotte Street, Portland Place.
Orig Memb	Paget, James, F.R.S., D.C.L. (*President*), Sergeant-Surgeon Extraordinary to H.M. the Queen; Surgeon in Ordinary to H.R.H. the Prince of Wales; Surgeon to St. Bartholomew's Hospital, and Surgeon to Christ's Hospital: 1 Harewood Place, Hanover Square. (V.P. 1867–8.)
Orig Memb	Parson, Edward, M.D., Physician Accoucheur and Lecturer on the Diseases of Women and Children at the Charing Cross Hospital: 8 Bolton Street, Mayfair.
Orig Memb	Pavy, Frederick William, M.D., F.R.S. (C.), Assistant Physician to, and Lecturer on Physiology at Guy's Hospital: 35 Grosvenor Street.
Orig Memb	Peacock, Thomas Bevill, M.D. (V.P.), Physician to St. Thomas's Hospital, and to the City of London Hospital for Diseases of the Chest: 20 Finsbury Circus. (C. 1867–8.)
Orig Memb	Pick, Thomas Pickering, Assistant Surgeon to St. George's Hospital; Surgeon to the Belgrave Hospital for Children: 7 South Eaton Place.
Orig Memb	Pollock, A. Julius, M.D., Assistant Physician to the Charing Cross Hospital; Physician to the Foundling Hospital: 21 Montague Place, Russell Square.
1868	Pollock, James Edward, M.D., Physician to the Hospital for Consumption and Diseases of the Chest: 52 Upper Brook Street.
Orig Memb	Powell, R. Douglas, M.D., Assistant Physician to the Hospital for Consumption and Diseases of the Chest: 6 Nottingham Place.
1868	*Prentis, Charles, Assistant Surgeon Bengal Army.
1870	Pullar, Alfred, M.D., Physician to the Westminster General Dispensary: 11 Grafton Street.
1868	Purnell, John J., Surgeon to the Royal General Dispensary: Woodlands, Streatham Hill.
Orig Memb	Quain, Richard, M.D., Physician to the Hospital for Consumption and Diseases of the Chest: 67 Harley Street. (C. 1867–70.)
Orig Memb	Ramskill, J. Spence, M.D., Physician to, and Lecturer on Medicine at the London Hospital; Senior Physician to the National Hospital for the Paralysed and Epileptic: 5 St. Helen's Place.

ELECTED

1868 RASCH, ADOLPHUS A., M.D., Honorary Physician to the German Hospital Eastern Dispensary: 7 South Street, Finsbury Square.

Orig Memb REES, GEORGE OWEN, M.D., F.R.S., Senior Physician to, and Lecturer on Medicine at Guy's Hospital: 26 Albemarle Street.

1868 REEVES, HENRY A., Assistant Surgeon to the London Hospital: 36 Gordon Square.

1868 RENDLE, JAMES D., M.D. (C.), Medical Officer to the Government Convict Prison, Brixton: Park Hill, Clapham Park.

Orig Memb REYNOLDS, JOHN RUSSELL, M.D., F.R.S., Examiner in Medicine at the University of London; Professor of the Principles and Practice of Medicine in University College; Physician to University College Hospital: 38 Grosvenor Street. (C. 1867–8.)

1868 RICE, MICHAEL W., M.B.: 90 Cadogan Place.

Orig Memb RINGER, SYDNEY, M.D., Professor of Materia Medica in University College, and Physician to University College Hospital; Assistant Physician to the Hospital for Sick Children: 15 Cavendish Place.

Orig Memb ROUSE, JAMES, Assistant Surgeon to St. George's Hospital, and to the Royal Ophthalmic Hospital, Charing Cross; Lecturer on Anatomy at St. George's Hospital: 2 Wilton Street, Grosvenor Place.

Orig Memb SALTER, HENRY HYDE, M.D., F.R.S., Examiner in Anatomy and Physiology to the Royal College of Physicians; Senior Physician to, and Lecturer on Medicine at the Charing Cross Hospital: 14 Harley Street.

Orig Memb SANDERSON, JOHN BURDON, M.D., F.R.S. (C.), Professor of Practical Physiology in University College; Physician to the Hospital for Consumption and Diseases of the Chest: 49 Queen Anne Street. (*Hon. Secretary*, 1867–70.)

1868 SANDERSON, HUGH JAMES, M.D., Physician to the Hospital for Women: 26 Upper Berkeley Street.

1869 SEDGWICK, LEONARD WILLIAM, M.D.: 2 Gloucester Terrace, Hyde Park.

Orig Memb SHAW, ALEXANDER, Consulting Surgeon to the Middlesex Hospital: 40 Abbey Road West, Kilburn.

Orig Memb SIBLEY, SEPTIMUS WILLIAM: 12 New Burlington Street.

Orig Memb SIBSON, FRANCIS, M.D., F.R.S. (C.), Physician to, and Lecturer on Clinical Medicine at St. Mary's Hospital: 59 Brook Street.

ELECTED

Orig Memb SIEVEKING, EDWARD HENRY, M.D., Physician in Ordinary to H.R.H. the Prince of Wales; Physician to St. Mary's and the Lock Hospitals: 17 Manchester Square.

1868 SILVER, ALEXANDER, M.D., Assistant Physician to, and Lecturer on Forensic Medicine at the Charing Cross Hospital: 8 Gray's Inn Place.

1868 SIMMS, FREDERICK, M.B., Physician to the St. Pancras and Northern Dispensary: 46 Wimpole Street.

Orig Memb SIMON, JOHN, F.R.S., D.C.L. (V.P.), Surgeon to, and Lecturer on Pathology at St. Thomas's Hospital; Medical Officer of H.M. Most Honourable Privy Council: 40 Kensington Square.

1868 SMITH, HEYWOOD, M.B., Assistant Physician to the Hospital for Women: 42 Park Street, Grosvenor Square.

1868 SMITH, PROTHEROE, M.D., Physician to the Hospital for Women: 42 Park Street, Grosvenor Square.

Orig Memb SMITH, THOMAS (C.), Assistant Surgeon to St. Bartholomew's Hospital, and Surgeon to the Hospital for Sick Children: 5 Stratford Place.

1868 *SNOW, WILLIAM V., M.D.: Eastbourne.

Orig Memb SOUTHEY, REGINALD, M.D. (C.), Physician to, and Lecturer on Forensic Medicine and Hygiene at St. Bartholomew's Hospital: 32 Montague Place, Russell Square.

1868 SQUAREY, CHARLES EDWARD, M.B., Assistant Physician to the Hospital for Women: Upper Wimpole Street.

Orig Memb STEPHEN, ANDREW, M.D.: 44 Victoria Road, Kensington.

Orig Memb STEWART, ALEXANDER PATRICK, M.D., Consulting Physician to the Middlesex Hospital: 75 Grosvenor Street.

1868 SUTRO, SIGISMUND, M.D., Senior Physician to the German Hospital: 37A Finsbury Square.

Orig Memb SUTTON, HENRY GAWEN, M.B., Assistant Physician to, and Lecturer on Pathology at the London Hospital, and Assistant Physician to the City of London Hospital for Diseases of the Chest: 30 Finsbury Square.

1868 TANNER, THOMAS HAWKES, M.D., F.L.S.: 9 Henrietta Street, Cavendish Square.

1868 TATHAM, JOHN, M.D., Assistant Physician to the Hospital for Consumption and Diseases of the Chest: 1 Wilton Place.

Orig Memb TEEVAN, WILLIAM F., Surgeon to the West London Hospital: 10 Portman Square.

ELECTED

Orig Memb THOMPSON, EDMUND SYMES, M.D., Physician to the Hospital for Consumption and Diseases of the Chest; Gresham Professor of Medicine: 3 Upper George Street, Portman Square.

Orig Memb THOMPSON, Sir HENRY, Knt., Surgeon Extraordinary to H.M. the King of the Belgians; Professor of Clinical Surgery in University College, and Surgeon to University College Hospital: 35 Wimpole Street. (C. 1867–8.)

Orig Memb THOMPSON, HENRY, M.D., Fellow of St. John's College, Cambridge; Physician to the Middlesex Hospital: 52 Welbeck Street.

1868 THOROWGOOD, JOHN C., M.D., Assistant Physician to the City of London Hospital for Diseases of the Chest: 61 Welbeck Street.

1868 VENNING, EDGCOMBE, Assistant Surgeon 1st Life Guards.

1869 VERNON, BOWATER J., Ophthalmic Surgeon to St. Bartholomew's Hospital: 93 Wimpole Street.

1868 VINEN, EDWARD HART, M.D., F.L.S.: 17 Chepstow Villas, Bayswater.

1868 WAGSTAFFE, WILLIAM WARWICK, Demonstrator of Anatomy and Surgical Registrar to St. Thomas's Hospital: 10 Walcot Place, Kennington.

1869 WALKER, JOSEPH, Dental Surgeon to the Westminster Hospital: 22 Grosvenor Street.

1868 WARD, STEPHEN H., M.D., Physician to the Seamen's Hospital Ship Dreadnought, and to the City of London Hospital for Diseases of the Chest: 28 Finsbury Circus.

1870 *WARWICK, RICHARD ARCHER, M.D., Surgeon to the Richmond Infirmary: 5 Hill Rise, Richmond.

1868 *WARWICK, WILLIAM R., M.D.: Southend, Essex.

1868 WATKINS, EDWIN T., M.D.: 61 Guildford Street.

Orig Memb WATSON, Sir THOMAS, Bart., M.D., D.C.L., LL.D., F.R.S., Physician Extraordinary to H.M. the Queen; Consulting Physician to King's College Hospital: 16 Henrietta Street, Cavendish Square. (*President* 1867–8.)

Orig Memb WATSON, WILLIAM SPENCER, M.B., Surgeon to the Central London Ophthalmic Hospital: 15 Henrietta Street, Cavendish Square.

Orig Memb WEBER, HERMANN, M.D. (C.), Physician to the German Hospital: 10 Grosvenor Street.

1869 WELLS, J. SOELBERG, M.D., Professor of Ophthalmology at King's College; Ophthalmic Surgeon to King's College Hospital, and Assistant Surgeon to the Royal London Ophthalmic Hospital, Moorfields: 7 Savile Row.

ELECTED

1868 WELLS, THOMAS SPENCER, Surgeon in Ordinary to H.M.'s Household; Surgeon to the Samaritan Free Hospital: 3 Upper Grosvenor Street.

1868 WHIPHAM, THOMAS TILLYER, M.B., Demonstrator of Anatomy at St. George's Hospital: 14 Queen Street, Mayfair.

Orig Memb WILKS, SAMUEL, M.D., F.R.S., Examiner in Medicine at the University of London; Physician to, and Lecturer on Medicine at Guy's Hospital: 77 Grosvenor Street.

Orig Memb WILLETT, ALFRED, Assistant Surgeon to St. Bartholomew's Hospital: 36 Wimpole Street.

Orig Memb WILLIAMS, CHARLES JAMES BLASIUS, M.D., F.R.S. (V.P.), Consulting Physician to the Hospital for Consumption and Diseases of the Chest: 49 Upper Brook Street.

Orig Memb WILLIAMS, CHARLES THEODORE, M.B., Assistant Physician to the Hospital for Consumption and Diseases of the Chest: 78 Park Street, Grosvenor Square.

Orig Memb *WILLIS, FRANCIS, M.D.: Braceborough, Stamford.

1868 WILTSHIRE, ALFRED, M.D.: 58 Queen Anne Street.

1869 WOLFF, ABRAHAM, Surgeon to the Spanish Jews' Hospital: 66 Gower Street.

CLINICAL SOCIETY OF LONDON.—BALANCE SHEET 1868–9.

1868		£	s.	d.	1869		£	s.	d.
	Balance in hand	73	4	1		Cost of printing, binding, and delivering			
1869						Transactions for 1868–9	88	13	0
	Arrears of subscriptions for 1867–8 . .	5	5	0		Medical Society of London for rent of rooms	31	10	0
	Subscriptions for 1868–9	210	0	0		Registrar for attendance at meetings . .	5	5	0
	Entrance fees received from new members .	22	1	0		Refreshments at meetings	13	2	6
	By sale of Transactions for 1867–8 . .	0	18	6		Printing, stationery, postage, &c. . .	11	0	11
						Cost of copying reports of debates for medical			
						journals	2	0	0
	Unpaid arrears of subscriptions:					Cost of collecting arrears of subscriptions .	1	9	0
	£ s. d.								
	1867–8 . . 1 1 0						153	0	5
	1868–9 . . 10 10 0					Balance due to Society	158	8	2
		311	8	7			311	8	7

E. HEADLAM GREENHOW,
Treasurer.

Audited and found correct, November 26, 1869. { W. B. KESTEVEN, R. DOUGLAS POWELL, } *Auditors.*

J. B. SANDERSON, *Hon. Sec.*

ADDRESS BY THE PRESIDENT,

JAMES PAGET, F.R.S.

I AM happy that my first words at the opening of a new session may be a congratulation on the prosperous conclusion of the last session's work. That work may be deemed concluded by the publication of the volume of our Transactions, for which, as well as for more good deeds than I can tell, we have to thank our Secretaries. To them we are quickly incurring debts much larger than we shall ever pay. Let us, at least, acknowledge the debts, and thank them heartily on every appropriate occasion.

Thinking how I may best help on the work before us, it has seemed to me that I may try to incite you, as I do myself, not only to be active members of the Society, active in both writing and debating, but to be in all your work strictly clinical.

I do not dwell on the general duties of membership in a Society such as this; the duties by which each of us is bound, first, to gather all the knowledge that he can for the advantage of those who are, or will be, committed to his charge; and then to communicate what he can for the good of others; and then, to leave records for future use, and the further increase of knowledge; giving freely to the future, as we have received freely from the past. On these things I do not doubt we are agreed; but I am anxious to urge that all our work should be really clinical; all our chief studies among the living; our records, and judgments always consistent with what in those studies we have clearly observed; our final appeal in all doubts to what in clinical researches can be discerned.

If I urge this strongly, it is because I think there are, even among ourselves, signs of a want of faith in the power of clinical research; signs of too great readiness to reject results and suggestions which are not accordant with our belief in physiology or anatomical pathology; of too great readiness to accept and act upon deductions from any other sciences, though they are not approved by our own.

I believe that we shall do little good if we do this. Our works will correspond with our faith, and be like it, timid and fruitless. We must believe, and act on the belief, that clinical science is as self-sufficient as any other. Self-sufficient indeed no one science can be. All sciences are bound together by common facts, and mutual illustrations, and the same cardinal rules of study; yet each, having its own subject-matter, may claim a special range of knowledge, and, within this range, the highest right of judging what is true. This claim we must maintain for clinical science, and justify by the results of our work.

It is difficult to make such a claim without seeming to depreciate physiology and the other sciences with which ours is in most intimate relations, and from which some seem to think that all knowledge of diseases and their remedies may be deduced. I should be among the last to detract from the honour of these sciences; for I know that from them we derive all our standards of comparison, the best suggestions, tests, and checks for our own studies, and many of the safest interpretations of the signs of disease. In them, too, most of us have gained our scientific education, and whatever we may possess of a scientific turn of mind. Still, after having spent nearly equal periods of study, first, in physiology and morbid anatomy, and then in practical medicine and surgery, I feel sure that clinical science has as good a claim to the name and rights and self-subsistence of a science as any other department of biology; and that in it are the safest and best means of increasing the knowledge of diseases and their treatment.

We need not, and we cannot, doubt that, in time, physiology and an exact pathology will have so far advanced, that the treatment of many diseases may be safely deduced from them. But that time must be very far distant; and it is not

unlikely that we may sooner arrive at larger results by clinical induction. Meantime, seeing that men's lives are committed to our charge, we must do our best in the most direct way we can; we may not wait for others' help; we must help ourselves with the means that are even now at hand; and these are the means of clinical study.

For as for ourselves, in this Society, whether we should study diseases through physiology and morbid anatomy, or through clinical researches, it is surely wise to observe the rule that what a man may undertake in the pursuit of science may generally be decided by his circumstances and opportunities. The study of marine zoology would scarcely be a wise pursuit for a country gentleman, or that of scientific agriculture for one immured all the year in some large town. Now our place is among the sick; they are at once our charge and our opportunity; our duty and our power are alike among them; among them we must, to the best of our ability, do good and study.

It cannot be objected that in claiming for clinical science the rights of special study, and in urging ourselves to pursue it with full faith in its sufficiency for the attainment of truth, we are encouraging the cultivation of too narrow a field. The field is so wide that there are in it lines of inquiry far more than enough for each of us to take a different one. The new nomenclature does not enumerate the whole of the subjects of our study, and every one of them may be studied in many different ways. But permit me to suggest some of those lines which seem to me most suited for our Society, in which, whether by rule or custom, those communications are most acceptable which are brief, defined, practical, and suggestive, containing not complete essays, but materials for discussion, after-thought, and gradual collection.

First of all, I think, we need far more records than we yet possess of cases of diseases observed in their natural course, not disturbed by treatment or by any avoidable external influences. This is, indeed, among the first great needs of our science. We have too few and imperfect standards of comparison from which to judge of the effects of treatment, or of the other disturbances to which diseases are liable.

Our need is, in this case, not altogether our fault; it is chiefly because we can rarely study the unhindered course of nature, and can rarely repeat the observations of phenomena under the very same conditions. Herein is indeed a chief difficulty of our study. We have to do with human lives, and they are too valuable to be tampered with, or to be left alone, if there be any chance that we can help them in their distress. Our first duty is to cure, only our second is to study; and if the first and second duties clash, the second must stand by. We must cure if we can—nay, we must try to cure even when we doubt whether we can, and although in the trial we should disturb all the conditions of our study.

Still, we are not altogether without opportunities of studying diseases in their natural course. Some patients refuse treatment; in some cases treatment is so plainly useless that it may be neglected; in some diseases the progress of events is so similar under various, and even opposite, plans of treatment, that we may believe the treatment is always without influence. Cases of these kinds should be carefully recorded. At first these records might seem only tedious and useless; but they would accumulate into evidence sufficient to give us what we need—standards of diseases running their natural course.

Very unlike these records would be those of rare cases; and, by the way, it would be worth much study to find out why some diseases are rare. These cases are not likely to be neglected in our Society; their rarity gives them the all-attracting interest of wonder, and their utility is great; for some of them brightly illustrate principles obscure without their help, and others must be remembered for example's sake. Just as lawyers have what is, I believe, called case-law, so must we have a memory of guiding cases. In both professions alike, case-knowledge is of a much lower order than that which grasps and uses large principles; but it has its value, and we must increase it when we can; especially because, by the time these rare cases are accumulated till they are no longer rare, they will probably become orderly and safe foundations of large principles better than themselves.

An important class of records which would well reward

anyone who would devote himself to them, is that of what may be called clinical coincidences; that is, of phenomena which are constantly observed together, though there may appear no bond of connection between them. At first sight such coincidences may seem to be mere curiosities without meaning; but they never are so; they are two or more parts of a chain or of a net, all the parts of which may from them be gradually traced out. If I am not wrong, the whole pathology of albuminuria, and of its widespread relations, was begun in the observation of an apparently unmeaning coincidence of dropsy and a curious disease of kidneys. Such a coincidence, not yet fully traced out, is that of disease of the renal capsules with coloration of the skin. Such an one may be that on which one of our committees is employed, in the evening rise of temperature in secondary syphilis; and such an one I hope to bring before the Society in cases of a peculiar condition of the skin of the breast, sometimes preceding cancer of the mammary gland. I believe that any one giving himself to this line of inquiry would detect many such clinical coincidences, and every one of them might become the clue to some large principle in pathology or practice.

'Clinical Sequences' might be the title of other sets of records, that should tell of phenomena always found in succession, yet not at first evidently related. Through the observation of such a sequence vaccination was discovered. Certain milkers of cows were infected with a vesicular eruption, and after this they were insusceptible of infection with small-pox. The fact was certain; but it was only curious and unmeaning till Jenner discerned its vast utility, and began the researches of which the importance, not only in life-saving, but in pathology, is now immeasurable.

The continuous history of syphilis which we can now read tells of a chain of clinical sequences, the several links of which were facts not unknown, but useless and confusing till their mutual relation was discerned. Probably more links may yet be discovered, and almost certainly there are similar sequences to be traced in many other diseases. What, for example, are the sequences of pyæmia? What of cholera, or typhus, or any such disease? It is not likely that they

leave a man unchanged, but what changes they work in him we cannot tell.

Again, it would be very useful if some of us would study and record all that belongs to the central facts in what may be called clinical groups, that is, in diseases which, however different in other characters, agree in having one marked character in common. Such are explosive diseases, with epilepsy for their chief example, and cumulative diseases, typified in gout. In both these groups we know comparatively well the phenomena of what, with a figure that confesses ignorance, we call the seizure or attack; but of the much more important events that lead up to it, and sometimes extend over months or years, we know scarce anything. Let me suggest 'nerve-storms' for the subject of an inquiry that should deal clinically with what is common to epilepsy, and the forms of hysteria, neuralgia, recurrent mania, and other diseases of the nervous system, in which great disturbances follow long periods of apparently healthy quietude, but of really gradually increasing, though as yet undiscerned, changes.

And, once more, let me suggest the utility of certain very narrow single lines of inquiry, too narrow for good mental exercise, yet worth pursuing by the side of larger studies. What is the relation between the weights of different patients and the mortality of operations on them? Sir William Jenner asked me this question, and I was ashamed that I could give no exact answer, though knowing in a vague way that excessive weight is often associated with conditions gravely hindering recovery from injuries. Or again, are people that are unnaturally hairy on the trunk and limbs generally unsound, or of feeble health? I believe they are, but I have not evidence enough for conviction. Such inquiries as these may seem trivial, but indeed they are not; see what Darwin makes of facts such as they might reveal.

I thus take the privilege, which may be supposed granted to the position in which you have placed me, of suggesting to you not so much subjects, as methods, of clinical study adapted for our reports and discussions. But one subject I must not pass by—that of therapeutics. For it has been objected by some, who admit that our Society has worked well in other

parts of clinical inquiry, that we have done little or nothing in this. Let me then, if need be, offer our apology, chiefly on the ground that the difficulty of increasing the knowledge of therapeutics, that is of the means of curing diseases, is very far greater than is supposed.

It seems to be a common belief that there must be a cure for every disease; just as in law they say that there is no wrong but has its remedy. One may be in error if, seeing the many and manifold social wrongs that go unredressed, one doubts this dictum in respect of the law; but there is no ground for supposing that it has its counterpart in pathology.

It is quite true that there are few diseases which may not be mitigated by treatment; few of which the worst consequences may not be in many cases retarded or averted; but the influence of therapeutics in these cases falls short of what may justly be called cure. For we must distinguish between the management and the cure of diseases. We may manage pyæmia, we may cure ague; we may manage cancer, we may cure syphilis. In this sense of 'cure' it is so far from being true, or highly probable, that there must be a cure for every disease, that the probability is rather the other way. It seems to me much more remarkable that there should be a cure for any disease, than that any disease should be incurable. It is surely very strange that when health is disturbed in one method, we should know another method of disturbing it, by which the first method may be excluded, and which will itself cease naturally. This is what is involved in the knowledge of everything that may justly be said to cure a disease, and nothing less than full experience could make such a thing credible.

But having some remedies, we may hope to attain to the knowledge of more, if only we will remember that in therapeutics the subject-matter of our study attains to its greatest complexity and greatest difficulty. And we should pursue the study, not only with a conviction of its extreme difficulty, but with a consciousness of the many motives that concur to make us too ready to take fallacies for facts. The love of reputation and the love of gain, the impulse of competition, and even the pure desire to do good, incline us to accept

such evidence of the cure of disease, as we should at once reject if the question were one of pure physiology, having no application in practice.

Let me venture to repeat, in relation to therapeutics, the need of absolute reliance on clinical study. For I cannot but observe that our discussions on remedies are apt to be very theoretical. I see painful efforts to make it appear that that which is believed to do good in any disease does so for some physiological reason. Well, it is very praiseworthy to strive after concord among all the parts of our study of life, and we may justly have the more confidence in a remedy which does good with good reason. Nevertheless we may be certain of many things we cannot yet explain. It may happen, and often does, that a medicine is effective against disease, although no physiological reason for its action can be assigned. Nay, may it not be justly said, that for all our chief remedies as for mercury and iodide of potassium in syphilis, for cinchona in ague, for bromide of potassium in some forms of epilepsy, there is absolutely no explanation? And so for many of the simplest facts in the action of medicine. The clinical facts are as certain as anything in biology, and they have remained certain for centuries, while the explanation of them has changed with every successive change in physiology. I fear that I may justly say more—that there never has been an error in practice which has not been supported by deductions from contemporary physiology. Excessive bleeding, useless purging, starvation, and excessive stimulation, everything which has been justly dismissed from practice, was in its time justified by the physiology of the period.

I end as I began, urging you to confidence in clinical studies, which are the proper field for the work of our Society. Receiving thankfully all the help that physiology or chemistry or any other sciences more advanced than our own can give us, and pursuing all our studies with the precision and circumspection that we may best learn from them, let us still hold that, within our range of study, that alone is true which is proved clinically, and that which is clinically proved needs no other evidence. And for the lines of inquiry which I have suggested, as well as for the many more of

which I have not spoken, let me hope that each of us may choose the one or more best suited to him, and work diligently. So shall we satisfy that which may be the ideal of a well-ordered society, wherein each man does for the good of all as much as he can of that which he can do best.

COMMUNICATIONS.

I.—*On the Hypophosphites of Iron, Quinine, and Strychnia in cases of general debility and nervous exhaustion.* By W. H. Day, M.D. *Read October* 8, 1869.

IT is to draw attention to the therapeutic value of the hypophosphites in combination with iron, quinine, and strychnia, that I am desirous of bringing before the notice of this Society a few cases which appear to me to establish their claim to our consideration. I believe that we may calculate on results from the hypophosphites when so combined which cannot be obtained when they are separately administered. The only way to learn the precise action and effect of any drug is to give it first alone, and in so doing we often derive valuable information; but because the results we obtain are not conclusive or satisfactory, it would be illogical to infer that the remedy which has disappointed our expectations taken singly, may not bring most favourable results when exhibited in combination with some well-known therapeutic agents; the two or more achieving together what neither can separately accomplish. It must be confessed that this is a somewhat empirical plan to pursue, and as such it is open to objection; but whilst our knowledge of the action of remedies is so vague, our prescribing can be regulated by no fixed or assured principles, as a host of drugs which often chemically and mechanically disagree are thrown antagonistically together. It becomes evident, then, that we are not in a position to discountenance a careful mixing of remedies for the treatment of disease, and in many instances we are gainers by the practice.

Case I.

In 1862 a single lady, æt. 25, fell into a delicate state of health. She was of a nervous and excitable temperament,

exceedingly sensitive, and suffered from agonising paroxysms of neuralgia and dysmenorrhœa. The dysmenorrhœa was so severe that she habitually kept her bed at the monthly periods; it was attended with headache, great pallor of the surface, and the stomach was so irritable she could retain no kind of food for days together. The neuralgia in the face and arm was equally acute, depriving her of sleep, and bringing her into the most fretful and irritable state of mind. From the shoulders to the fingers of the right arm the neuralgic paroxysms at night were most acute, as her aspect and general condition plainly told. Iron, quinine, cod-liver oil, nutritious food, change of air and scene, afforded but transient benefit, till it occurred to me, in confronting apparent failure from all remedies, that the hypophosphites in combination with iron might be worth a trial. A teaspoonful of the syrup was given in a wineglassful of water three times a day, and at the end of a fortnight a very decided improvement had set in. The remedy was continued without interruption for six weeks, and the patient has frequently resorted to it of her own accord from time to time during the space of a year. At the end of this period menstruation was scarcely painful at all, and the neuralgia of the face and arm was very rarely felt. It was noticed, too, that her excitability and tendency to magnify fancied grievances had, in a great measure, passed away. Except for the remedy, I am unable to account for the salutary change in the patient's condition.

Case II.

On April 3, 1868, an unmarried lady consulted me with the following history. For the previous two years she had been losing flesh and strength, and the bladder was so irritable that she dared not venture into society. She was very tremulous and nervous, and complained of pain at the top and back of the head. The pulse was very small and weak, the skin natural, and the tongue clean. A soft systolic murmur was audible over the base of the heart, which could be traced upwards in the course of the aorta and subclavian arteries. The vesical irritation did not trouble her at night. She was ordered tincture of perchloride of iron, quinine, and tincture of nux vomica. Three weeks later she was no better; the urine was of a pale straw colour, and slightly acid,

with a thin cloudy deposit, which became clear by heat and nitric acid, sp. gr. 1025, no trace of sugar. The catamenial period was regular and painless. The nervous tremor was extreme. She took belladonna and camphor at bed-time, and liquor potassæ with full doses of henbane and bark during the day.

On May 3, being no better, tincture of perchloride of iron was again prescribed, with hyoscyamus, tincture of lavender, and compound decoction of aloes, as the bowels were sluggish. She was also ordered cod-liver oil in orange wine.

On June 4 she went to the seaside, and the medicine was exchanged for sulphuric acid and tincture of bark.

On July 8 the enuresis was still very troublesome, and the anæmic state more confirmed; the pain in the back of the head continued, and the patient was desponding.

On August 7 nervous palpitation of the heart complicated the other symptoms.

On September 28 the enuresis was as bad as ever, and great weight was complained of at the top of the head, which was also hot. Her appetite was ravenous; to use her own expression, 'I so crave for support that I eat and drink incessantly.' It was ascertained that there was neither congestion nor displacement of the uterus, the organ being apparently healthy. There being no discoverable cause for these symptoms beyond debility, I now prescribed the following draught three times a day:—Calcis hypophosph. gr. v.; tinct. ferri perchlor., spt. æther. chlor., āā ♏ xv.; syrupi, ʒj.; aquæ ad ℥j. Fiat haustus.*

October 22.—There was a great improvement in the patient's health; she was better and stronger than she had been for months, having nearly lost her headache, and the vesical irritation was much abated.

December 10.—She had now entirely recovered her usual health and strength, and had lost all irritation in the bladder. She had continued the hypophosphite mixture up to the present time.

One of the first signs of improvement in this case was the subsidence of the nervous symptoms, and the change for the better immediately followed the last medicine.

* Quinine and strychnia added to this mixture do not disturb the clearness of the solution. The hypophosphite of soda renders it turbid.

Case III.

In May 1868 a married lady, æt. 26, with two children, complained of acute pain in the lumbar regions, traceable to debility. She felt free on rising in the morning, but the suffering soon came on after assuming an erect posture. There was neither congestion of the kidneys, loaded colon, nor unhealthy state of the urine—common causes of pain across the lumbar regions. Tonics of steel and quinine, rest, and elastic bandages gave some relief, but at the end of the month the pain had returned very severely, and liniments of chloroform, belladonna, and turpentine were ordered. One of Pulvermacher's belts was now worn round the waist next to the body, and the pain shortly after departed, the patient having suffered more or less for some months. In April 1869 the pain in the back returned; she was pallid, irritable, and agitated, and unequal to her accustomed duties; the pulse was weak, and the bowels costive. She took various tonics for some time, and laid up on a sofa, sometimes being better and sometimes worse, but despairing of ever losing the pain entirely. In June the syrup of the phosphate of iron with quinine and strychnia (Easton's) was ordered, and in less than a week she had improved. In six months she had recovered.

I might adduce numerous other instances of the great success that has followed the use of the hypophosphites with iron. One case of persistent debility attended with irritation of the whole mucous membrane was greatly benefited. Various medicines were tried from time to time, including the mildest preparations of iron; but they could not be borne, as they caused sickness, nausea, cramps, and diarrhœa. The case has been under my observation for some years, and I have now the satisfaction of knowing that the syrup of the hypophosphite of iron is entitled to the credit of bringing about a favourable change. The patient has not been so well for many years, and her digestive powers are so much stronger that she is able to take the diet of a healthy person.*

* A medical man whose health had become shaken from severe attacks of spasmodic asthma, of many years' duration, has derived the greatest benefit from the hypophosphites, with iron, quinine, and strychnia. The intervals between the paroxysms are now much longer, and his strength and energy are wonderfully increased. He tried many tonics, at different times, including quinine and iron, without experiencing any good.

In states of nervous irritation among children, characterised by restlessness, morbid sensibility to slight impressions, activity of mind, fear, alarm, I have witnessed the best results from the hypophosphites and iron. In such cases the excitement has been sometimes constitutional, and in others it has followed such diseases as whooping-cough and measles, but the symptoms have in all been referable to anæmia, or to some deficiency in the cerebral circulation, which, if overlooked or ill treated, has sometimes passed into exhaustion, convulsions, and even coma.

It seems to me that the hypophosphites when so administered act primarily through the agency of the nervous system, and secondarily through the blood, though their precise manner of action has yet to be demonstrated. They are safe and excellent vehicles for the introduction into the system of a few powerful medicines, which some morbid or asthenic conditions of the body are prone otherwise to reject, owing to the excitement and general disturbance they occasionally create.

I have never met with a decidedly genuine case where the constitution could not tolerate iron, quinine, and strychnia when so given, unless the dose was too large, or it was continued too long a time without temporary interruption.

It may be that the hypophosphites increase the ordinary normal functions of the digestive organs, by infusing into them additional nervous force, and imparting that stimulus which enables them to accommodate at once certain remedies that are plainly needed. In an excellent and practical pamphlet, Dr. Thorowgood has published the results of his experience of the hypophosphites of lime and soda in cases of phthisis, and he appears to have obtained much success with these when they were exhibited in a simple bitter infusion, the patients gaining flesh and strength, and the physical signs in the early stages of the disease not only improving, but in some instances vanishing altogether. At the present moment I cannot urge anything in their favour when given in the way Dr. Thorowgood has advised, but in the more advanced and advancing stages of phthisis, in combination with some of the preparations of iron, it has appeared to me that the progress of the disease has been delayed, and that the blood and the nervous system have especially benefited. Advantages too have been apparent which have not followed either remedy separately given.

The particular combination of the hypophosphite with iron, quinine, or strychnia must be left to the discretion of the prescriber. A favourite formula of mine is that of the hypophosphite of lime, with the tincture of the perchloride of iron, sometimes adding a few drops of chloric æther, and quinine and strychnia as the case may be. To all of these prescriptions one drachm of syrup should be added to each dose, as the sugar prevents the oxidation of the hypophosphite salts in solution, and if it were not employed they would quickly pass into phosphates.* As these remedies are employed in chronic cases, and their beneficial effects are not immediate, it is advisable to commence with a small dose. If the syrup preparations which are not officinal are employed, it is well to begin with ʒss in water three times a day, gradually increased to ʒj. It will not be advisable to give a larger dose than this, and six weeks is a fair time for the continuation of these drugs.

There is no better form of administration than the hypophosphites; they are soluble, pleasant to the taste, and the hypophosphite of lime is most suitably combined with iron, quinine, and strychnia. The cases for which these remedies are especially applicable are—

1. Those of simple and uncomplicated debility, where all the functions are working naturally, but tardily, and depression of strength and spirits is a prominent manifestation.

2. Those of anæmia, with local derangement of one or more sets of nerves, as in neuralgia, or threatening palsy from nervous exhaustion, or slow blood-change from the diatheses of struma, syphilis, tubercle.

3. Those especially marked by nervous exhaustion and muscular weakness, from whatever cause arising. The nervous force would seem to be propagated with greater activity to the particular set of muscles, which have lost their tone.

4. Those of excitability and irritability of the nervous system, hysteria, insomnia, some forms of epilepsy, and exhaustion of the brain from overwork, or from any of the usual causes of debility.

5. Those of atonic dyspepsia, and gastralgia from blood

* For the convenience of prescribers, there are kept by most good chemists the syrup of the hypophosphite of iron, and the syrup of the hypophosphite of iron and quinine. The syrup. ferri phosp. ē quinia et strychnia (Easton's) is very similar to the syr. ferri phosp. of the Brit. Pharm., each ʒj containing one grain of phosphate of iron; but in the latter preparation there is also one grain of phosphate of quinia, and the $\frac{1}{32}$ gr. of strychnia.

impoverishment, in which chalybeate preparations are indicated, but through feeble digestive power cannot be tolerated. The combination of the hypophosphites of iron, quinine, and strychnia has appeared to me to rouse the ganglionic nervous system to vigour of action, and frequently to cure the wearing pain in an incredibly short space of time.

If we have found in the hypophosphites remedies to aid the accomplishment of these ends, we must not too lightly estimate their value.

II.—*On the Effects of Copper upon the System.* By Edward Clapton, M.D. *Read October* 8, 1869.

THERE are several phenomena connected with the slow introduction of copper in the system which I am desirous of bringing before this society, as I am not aware that they have yet been recorded. They are at least interesting in a clinical point of view, even if they should not prove of any therapeutical value.

I was first led to the consideration of these points by the following case:—

William D., 32, a sailor, attended as one of my out-patients at St. Thomas's Hospital in July 1867. He was a very thin, miserable-looking man, suffering from chronic gastro-enteritis. He stated that he was compelled during the greater period of a long voyage to drink lemon-juice which had been kept in a copper tank. The master of the vessel had recourse to this expedient because in a former voyage he had experienced much difficulty in preserving the lemon-juice. The rest of the crew suffered in a similar manner. His symptoms were frequent vomiting, purging, and griping, a patchy tongue, partly furred and partly morbidly red, a feeling of constriction in the throat, coldness and numbness of extremities, a small frequent pulse, constant headache, and frequent cramp of legs. One peculiarity which

I made a particular note of at the time was the existence of a most marked green line on the margin of the gums and for some little distance on the teeth.

Not long after this I noticed a similar appearance on the gums and teeth of a young woman who was employed in an artificial flower manufactory, in which occupation she was obliged to be constantly inhaling the fine dust of verdigris and emerald green (an aceto-arsenite of copper).

In June of last year a coppersmith from Penn's factory, Deptford, came under my care at the hospital. He was labouring under vertigo, gastrodynia, flatulence, a peculiar coppery taste, frequent vomiting and dyspnœa, tongue moist and flabby. There was a dark green stain which extended over at least half of each tooth.

He informed me that there were 15 other men working in the same shop. I several times visited the factory, as also other copper works situated in Deptford; New Cut; York Road, Lambeth; and Chandos Street, Charing Cross. Several patients from these and other works have subsequently come under my care as out-patients. Most of the workmen (especially those who were in ill-health) had green stains on their teeth, of different shades of colour, varying from a light bright green to a dark greenish-brown.

Their perspiration, too, had a bluish-green tinge. I examined the shirts and flannel vests of several, and found some very deeply stained, especially under the arms. I thought at first it might have been the copper particles or fumes which had lodged in the skin and garments, and so by its direct action caused the discoloration; but on a careful examination I was convinced it was not so. Even after a hot bath and a thorough washing with soap, a clean shirt will be quickly stained with the green perspiration, especially after a brisk walk on a hot day.

The discharge from a large ulcer on the leg in one case which I saw was of a deeper colour even than the perspiration, though the leg was covered by a large piece of rag, a bandage, and a thick woollen sock. I noticed, too, that the wooden handles of the hammers and other tools were all of a green colour, from the perspiration of the hands.

The hair of several old workmen had also a distinct greenish tinge, and I was informed that it remained permanently so, even after they had left work altogether, but there is no instance of its occurring under 20 years' service.

On the whole, I may say that the workmen are a healthy

set of men. They do not suffer from any definite diseases, as do the workers in lead, arsenic, and mercury. This cannot be altogether from copper being a less volatile metal, as has been suggested, inasmuch as the air of the shop, when viewed in a bright ray of light, is distinctly seen to be highly charged with bright metallic particles, and the fumes given off during the process of strongly heating the copper for joining purposes are intensely powerful and suffocating. These fumes appear to be far more injurious than simply inhaling the dust. Pure water, too, kept in the room for even a short time can be shown by tests, such as putting in the steel blade of a knife, to be charged with copper.

Although, as I said, no definite disease results from the constant introduction of copper in the system, still many of the men complained of habitual lassitude and giddiness, and a disinclination when not at work to go about as the workmen in other branches do. Some of them were exceedingly thin and had very unhealthy complexions.

One very remarkable circumstance (of which I was first informed last year by Benham and Froude, Chandos Street) was mentioned at each of the works—viz., the absolute freedom of the workmen from cholera or even choleraic diarrhœa. During each of the great cholera outbreaks there were terrible ravages in one or other of their neighbourhoods, but not one of these men was in the slightest degree affected. Yet they do not habitually suffer from constipation. On the contrary, they nearly all speak of the great regularity of the action of their bowels. Diuresis is not uncommon. I have one out-patient at the present time from Stone's factory at Deptford, who passes 5 or 6 pints of urine daily, though there is not a trace of sugar in it, and its specific gravity is not over 1014. Copper, in fact, is not physiologically, though it is therapeutically, an astringent. Its specific action as a prophylactic in respect of cholera and choleraic diarrhœa probably depends in great measure on its being so decided a disinfectant, not only as regards its direct action on sulphuretted hydrogen and hydrosulphurets, but also from its well-known influence in destroying all kinds of minute fungi, and preventing the germination of their spores, for which purpose it is commonly used as a preservative against dry rot and smut in corn. At all events, the immunity of this class of men from cholera is a remarkable and positive fact. I have for a long time made many enquiries in this matter, and cannot as yet learn that a single case has occurred amongst

them. The foreman at Penn's factory, a very intelligent man, informed me that at Edinburgh during the great outbreak of cholera there it was considered amongst the men (over 50 in number), in one of the most extensive copper works, a marvellous circumstance that they one and all escaped, though it never entered into their heads that this could be in any way due to the nature of their occupation.

It seems to me, therefore, that in seasons of cholera some form of taking it in small quantities as a prophylactic might be devised with the utmost benefit—perhaps the sulphate of copper; it is not in any way injurious, even if it should do no good. Dr. Elliotson related the case of a patient who had taken sulphate of copper daily for 3 years, for a particular complaint, without its having produced any constitutional effect.

At all events, some form of copper fumigation in houses might easily be devised, and it might also be used in solution as a disinfectant.

Another noteworthy fact is the rapidity with which wounds, whether incised or punctured, heal. An injury such as amongst other workmen, especially those in lead, would (as they say) be sure to fester, and compel them even to leave work for a few days, is thought nothing of by the copper-workers.

I will now restrict myself to a few general remarks on these cases. First, how is it that the effect of copper, even when inhaled for years, is comparatively so slight, and does not lead on to any special diseases? Probably, as I think, because the system can tolerate an excess of what is a natural constituent, however minute in quantity, infinitely better than it can the introduction of what is entirely foreign, such as lead, arsenic, mercury; and in my opinion it has been clearly shown that copper is a natural constituent. Sargeaux and others have actually detected it in the blood of animals, and it has been found by several chemists in the ashes of many plants. It is always present in the incinerated residue of coffee, sugar, madder, mustard, wheat-flour, eggs, and cheese. Dr. Odling has frequently found traces in the incinerated residue of the organs of the human and animal body. Dr. Taylor says in a paper* on a doubtful case of poisoning by copper in some food: 'Absorbed and deposited copper in the liver was not sought for, inasmuch as

* Guy's 'Hospital Reports,' 1866.

traces of this metal may be found in the liver, kidneys, and other organs, if specially examined, in persons dying from causes wholly irrespective of poisoning.' It is doubtless, therefore, a normal constituent in the blood of man and animals, being in the first place taken up by plants from the soil. It seems to require oxidation of the metal by some cause, such as the action of acids, or by strongly heating it, in order to render it injurious. It is doubtful, indeed, whether there are any pernicious effects from the metal itself, either in a small mass or in finely divided particles. Copper coins have been swallowed and retained a long time without ill effects. And it is recorded that Drouard gave as much as 1 oz. of finely powdered copper to dogs of different ages and sizes, but none of them suffered inconvenience.

As to the peculiar chromidrosis, or greenish-blue perspiration, which all the workmen in copper have more or less, the only case of such which I find recorded is one in Mr. Erasmus Wilson's work on skin diseases. It came under the notice of Mr. Pritchard of Leamington, and the cause was the accidental exhibition of copper with food, the food having been prepared in a copper vessel plated with tin, from which a portion of the tin was rubbed away. Other colours, however, as ruby or saffron, have been vaguely described in connection with the perspiration in various maladies. I have frequently observed in patients who are suffering from acute affections, as rheumatic catarrhs, and many febrile attacks attended with lithuria, that their linen, under the arms especially, is stained of a deep brownish-purple colour, the perspiration then containing, I should say, purpurate of ammonia.

The few instances of so-called hæmidrosis which have been somewhat dubiously reported are doubtless cases in which the sweat has been reddened by some peculiar pigment. The rhinoceros is said occasionally to sweat blood, but it has been discovered that it is not really blood, but some secretion containing red pigmental matter, and I believe of a cupreous nature. A very interesting paper has been published* by Professor Church. He found by numerous chemical experiments that the colours which the feathers of birds display are due either to the 'optical' characters of the surface, or to the presence of definite colouring matters. He was led to these experiments by having pointed out to him the singular property of the red feathers of the bird called the 'plaintain-eater.' These

* 'Student' of April 1868.

feathers yield up their colouring matter to pure water, a beautiful rose-coloured solution being formed. From the fact of the brilliant crimson patch on the deep violet of the wing fading to a dirty grey under certain circumstances, it was at first thought that the wily natives of the Gold Coast had imposed on the purchasers by palming off painted birds, but the beautiful tint was found to be really due to a red cupreous pigment in a natural secretion. This metal was found only on the red patches, and always in a definite proportion; and it was discovered that not only did birds bred in captivity acquire it naturally, but also that it was reproduced after being entirely removed. The copper is, of course, derived from the articles of food on which they subsist.

I mention these facts as further evidence that the various colorations of sweat, teeth, and hair in the human subject which I have described are due to absorption, assimilation, and secretion of the copper, and not to a mere local deposit. I have not much to say about the treatment of cuprism, if I may so term the peculiar constitutional debility which so commonly attends the gradual introduction of copper in the system. I generally prescribed quinine, iron, and sulphuric acid, with a generous diet, and recommended these patients to partake plentifully of sugar and milk, and to take a pint or two of sweet ale daily, also to avoid fats and vegetable acids, and much salt.

Perhaps I may here incidentally state that inasmuch as sugar has been proved, especially by the experiments of Duval and Orfila, to be a decided antidote to the action of copper, I thought that conversely the latter might in some way be antagonistic to the formation of sugar in cases of diabetes. It has the further advantage of being an important astringent in excessive secretions, and, perhaps most importantly of all, of being a well-marked nervine tonic, capable, as I think, of gradual increase of dose, such as zinc is, and similarly without injurious effects. At all events, I am now prescribing it for this disease at St. Thomas's Hospital, and, as far as I have gone, with the best effect; but I purpose at some future time to give the result of these observations.

Report on Dr. Clapton's *Paper on the Effects of Copper in the System. Read May* 27, 1870.

Two extensive copper foundries were visited on April 28, 1870—namely, those of Messrs. Penn, and of Messrs. Stone, in Deptford.

Twelve workmen were examined. Their ages varied from 16 to 68 years. The number of years during which they had been employed in copper foundries ranged from 3½ to 55 years. Their aspect, generally, was not that of good health: they were mostly sallow-looking, and many complained of lassitude and dyspepsia. Diuresis was not uncommon among them. They said that they lose their teeth early. It was stated that cuts and wounds heal very rapidly among these men, and it was also asserted that they have always been strikingly exempt from cholera, even when this disease has been severely prevalent among their neighbours.

The green line on the gums and teeth spoken of by the author of the paper was closely investigated. It was found to vary from light green to a dark olive colour on the teeth. Its existence on the gums was not seen in any of the men examined by us. The green discoloration of the teeth was most observable on the upper front teeth up to the edge of the gum, where they are protected by the folds of mucous lining of the lips. It could not be removed by scraping with an ordinary penknife. It was uniformly absent from the posterior aspect of the teeth, owing, doubtless, to the friction of this surface by the tongue. In one or two instances of young men the green line was wholly wanting, apparently in connection with habits of stricter personal cleanliness. It was further uniformly absent from the teeth of the men employed in the melting rooms, where the dust and fumes were carried off by the flues.

With reference to green discoloration of the clothing, attributed by Dr. Clapton to the perspiration, we observed that the workmen's shirts and flannel vests were stained green in the armpits, while the men stated that their drawers were also stained behind the knees, but seldom higher than that point. These facts were by the workmen themselves voluntarily referred to the detention in these parts of the particles of metallic dust passing up their sleeves and trousers.

The handles of hammers and other tools used by these men were also in like manner stained green.

Green discoloration of the hair was observable in several instances, marked off at a line where the hat or cap covered the head. One man attributed this to a habit of passing his fingers through his hair while at work.

Dr. Lawson has examined some of this hair at Dr. Clapton's request. We append a copy of the letter from that gentleman to Dr. Clapton :—

'October 29, 1869.

'I have examined the hair of your copper patients. I find that when burnt distinct evidence is given of the presence of copper by the examination of the flame with the spectroscope in the ordinary way.

'When examined under the micro-spectroscope, however, they gave no absorption bands such as we see in cases of carmine, blood, Condy's fluid, and such like. From these facts I should be disposed to infer that the stain on the hair is not due to copper absorbed into the system and then excreted, but is the result of the lodgment of minute particles of copper on the external surface of the hair, much in the same way as a lead comb acts.

'HENRY LAWSON.

'To Dr. Clapton.'

One of the workmen has had for several years past a large open ulcerated surface on his left leg. The dressings on this were carefully examined, and were not found to present any green colour. The secretion from the surface of the ulcer was mopped up with white blotting-paper, and carefully tested for copper without that metal being discovered. The urine of this man was also subjected to chemical examination, with the same negative result.

In conclusion, we have to report that we could detect no evidence of any eliminative process from the blood itself.

GEORGE W. CALLENDER.
W. B. KESTEVEN.

III.—*A Case of Operation for Cleft Palate in a Child aged sixteen months.* By F. Howard Marsh. *Read October* 22, 1869.

AMONG the principal recent advances in surgery, Mr. Thomas Smith's method of curing cleft palate in children is conspicuous. His operations, which are facilitated by the use of chloroform and of a peculiar gag, have been described by him in the last volume of the 'Medico-Chirurgical Transactions,' and, more recently, in one of the medical journals, so that members of the society are no doubt familiar with his plan. I take it for granted that the advantages of closing a fissure of the palate in early childhood are obvious; but what is exactly the best age of the child at which the operation should be undertaken has not yet been decided. It is as a contribution to the data on which this question may be discussed that I would briefly describe a case in which the operation on the soft palate was successful in a child 16 months old.

In the middle of last June a healthy-looking male child, aged 14 months, was brought to the Children's Hospital with a cleft of the whole length of the soft, and of about one-fifth of the hard, palate. The soft parts on the sides of the cleft were neither very scanty nor very abundant. The child was admitted, and in order, as a preliminary step, to divide the levatores palati muscles, I passed a narrow knife through the soft palate at the sides of, and near the anterior extremity of the cleft, and cut backwards and outwards for about a quarter of an inch. The parts in a child thus young were of course small, and I dare not say that I am sure what I cut. Next day the child had diarrhœa; and, this lasting for two days, I thought it better to delay operating. On August 22 the child was re-admitted. I found—whether as the result of the cuts made in the palate I do not know—that the soft parts hung flaccid, so that the cleft was much narrower than it had appeared on the previous examination. The operation was performed at once. The child was placed under chloroform. Mr. Smith's gag was used, and he was good enough to help me. The edges of the cleft were first pared, five horsehair sutures were inserted, and the arches of the palate were snipped with blunt pointed scissors. There was some, but

by no means formidable, hæmorrhage. On the 4th day the edges of the wound looked as if about to slough; but the child seemed quite well, and took fluid food readily. On the 8th day the lower part of the wound had firmly united, but the anterior part, for about two lines, had re-opened. The child was now discharged. None of the sutures were removed, for they were doing no harm.

I am sorry that it was almost impracticable to have so young a child brought from its home in Islington here to-night. But it was at St. Bartholomew's Hospital on Wednesday, and was examined by Mr. Callender, Mr. Smith, Mr. Willett, and Mr. Langton. The cleft in the soft palate is completely closed. There is still a hole where the soft and the bony palates join, about as long and as wide as a kernel of wheat. The sutures have disappeared.

I have but very few remarks to make, and these will be in reference to cases of cleft of the soft palate only. I think Mr. Smith does not advise an operation before the patient is 2 or $2\frac{1}{2}$ years old; first, because in younger children success is likely to be spoilt by so many little illnesses, such as derangement of the bowels, with sickness or diarrhœa, the troubles of dentition, or some of the specific disorders, such as measles. And, secondly, he refers to the experience of Billroth, who in operating on young children found that, although union occurred after the operation, it gave way again on the 8th or 9th day, when the child's general health flagged. It remains to be learnt how far the general experience of others may correspond with that of Billroth on this point. There is, however, much force in Mr. Smith's remarks on the ill effects of the illnesses of infancy on the results of operations; but they rather show the need for care in the choice of a time at which to operate, and in the after-management of the patient, than that the difficulties which he mentions are insuperable.

From a physiological point of view (if it be allowed so to speak at the Clinical Society), it seems important to perform the operation at the earliest moment at which it will succeed; for in infancy parts not only grow, but possess a certain degree of formative power or germinal capacity. And this power—which wanes from year to year—appears especially active for the completion of parts deficient from an arrest of their development. A very familiar, though not very common, example is that of the cure of a spina bifida by the spontaneous closure of the fissure in the spinal column;

and it seems safe to believe that this remnant of formative power may be turned to the best account in the case of a cleft palate, if the parts are placed by an operation as nearly as possible in their natural state. So that, although the degree in which articulation may approach its perfection in cases in which the operation is done early has yet to be ascertained by experience, the strong probability is that the earlier the operation is successfully done the more perfect will articulation be.

I must add that the case just read is by no means the only one of successful operations in children under 2 years old. Mr. Lawson Tait says* that he has cured a child at the age of 9 months. And Mr. Frank Buszard, house surgeon at Northampton Hospital, has recorded a case in which he closed a fissure of both the soft and the hard palate in a child 6 months old, at a single operation.

IV.—*Fracture of the Base of the Skull, with slight immediate symptoms, subsequent coma and hemiplegia, recovery from these, death and autopsy.* By CAMPBELL DE MORGAN. *Read October* 22, 1869.

EDWARD R., æt. 44, a last-maker, and previously healthy, was admitted into the Middlesex Hospital on June 22, 1869, for an injury to the head from a fall. He was intoxicated; and, though at first stunned, he soon regained the semi-consciousness of a tipsy man. There was a contusion at the back of the head, and copious hæmorrhage from the right ear. The pupils were normal, and acted on change of light; and there was no ecchymosis about the lids or beneath the conjunctivæ.

He was placed in bed, and ice was applied to the head. There was some difficulty in keeping him quiet, as he tried to get out of bed, moving all his limbs freely and equally.

For many days he had the symptoms of irritation of the brain—restlessness, incoherence, imperfect recognition of his

* 'Lancet,' August 21, 1869.

family. The pulse during this time was moderate—70 to 78—and not full or hard. The bowels were freely acted on by purgatives. At times the action was somewhat excessive, and it was thought right to give remedies to stop it.

On the 27th the patient had a convulsion. He was quieted by morphia, but had a restless night, and on the following morning had three fits, the convulsive twitchings being confined to the left side of the upper part of the body. The legs were unaffected. The pupils remained natural.

During all this time the patient was regaining mental tone, so that he would answer questions and give a rational account of himself; but his memory was impaired, and he did not appear at all times to recognise his family.

From this period he began to mend rapidly. Every day he seemed more like himself. His memory gradually returned; he slept well, and was free from restlessness. His appetite was good, and he took food without its exciting him or making him heavy.

By July 12 he was so well that he was up and walking about. He wanted to be allowed to go out, but this was not permitted. Although free from pain generally, rapid movement or striking on the head gave rise to it; and at times, but not often, it would come on without any external force being applied.

On July 13 he complained of more headache, especially on the right side; and this was much aggravated on any rapid movement. He was quite rational, and his memory was good; but the pulse was slower than before—not more than 60 when he was quiet, but becoming quicker if he was at all excited. He had a very restless night, calling out at times, and wanting to get out of bed. On the following day (the 14th) he was not well; his appetite failed him; the tongue was more foul than usual, and it was never very clean. He had a general feeling of *malaise*, and a good deal of headache, with sharp pain at times. He now stated that a day or two before he had had a feeling of shivering, but he was not quite certain as to the day, and he had thought little of it.

He had again a bad night, rolling his head from side to side, and being very restless. The pulse was becoming quicker, and had risen to 80. The skin was hot.

He remained in this state during the following day. There was no convulsion, or paralysis, or affection of speech.

On the 16th he was drowsy, and passed his urine in bed;

but he was quite rational when roused. The pupils were contracted; the breathing was laboured.

In this condition he passed the night; but on the morning of the 17th he became quite insensible, with heavy, laboured breathing, and it was now noticed that there was paralysis of the left side of the body; the face was unaffected. The coma was complete; no effort that was made had the least effect in rousing him. The pupils were contracted, the pulse over 100, and somewhat irregular. When the right arm or leg was raised there was some resistance, and if put in a strained position it was moved back to its place, but the left arm and leg were quite flaccid and motionless. The urine was passed in bed, and an enema which was given was immediately returned. In this state he remained for some hours. Towards evening he had recovered some consciousness, and could be easily roused, but was quite unable to speak plainly; he seemed to want the power of articulation, though he made the attempt to speak. An enema was again given, and was retained.

When I saw him on the following day he was still drowsy, but could be roused up, and then was somewhat excited in manner. He could speak, but it was like the speech of a drunken man. When asked to give me his hand he put out the right hand readily; but when asked to give the left hand he said, 'Oh, yes; why shouldn't I give the other hand?' and tried to do so, but at last lifted it up with the right. In the leg there was a slight, but a very slight, power of voluntary movement.

From this time for some days he went on improving. At first he was at times excited and restless, as he had been when he first came to the hospital. But every day he gained power over the left side, and his speech was quite restored. So completely had he recovered that on July 23, six days after the culminating point of the attack, the report was, 'Pulse 68. He slept all night quietly, and seems a great deal better. Is quite rational. The use of his left arm is nearly restored, though he cannot grasp quite so strongly with the left as with the right hand. The leg has quite recovered its strength, and he has no pain in the head.'

Up to August 3 he continued to gain strength, and seemed in every way as well as he was before the attack.

On that day, however, he complained of headache, and was continually passing his finger across his forehead; the pain was principally on the right side. He had had a somewhat

restless night. His mind seemed a little confused. The pulse was quiet, 68. For some days he remained in this state; there was no return of paralysis, but he was drowsy. He could be at once roused, and would talk rationally, but he complained continually of his head. He continued much in the same way till the 11th, gradually becoming more drowsy. He never lost consciousness, however, though on that day his motions and urine passed involuntarily. He continued to take nourishment, and would answer readily when spoken to, still complaining of headache. At night he was restless.

On the night of the 11th he became somewhat rapidly quite insensible, with stertorous breathing and a livid countenance; the pupils immovable and unequally dilated. There was no return of paralysis of the limbs, and he died on the morning of the 12th.

On post-mortem examination, as recorded by Mr. Arnott, a linear fracture of the skull was found, extending vertically through the right parietal and temporal bones, skirting along the front of the petrous portion to the foramen ovale of the same side. The crack began quite at the upper and posterior angle of the parietal bone. Beneath this part the dura mater was thickened, and firmly adherent to the parts beneath. In endeavouring to raise it an abscess in the brain was torn open, and much thick greenish pus escaped. Further search showed this abscess to be situated immediately below the surface of the outer (and rather under) part of the middle lobe of the cerebrum. It was lined with a well-defined thick slate-coloured wall, and contained about an ounce of greenish pus. It had recently—close upon death (?)—opened into the lateral ventricle of the same side, which was not, however, inflamed; nor was any pus in the other ventricle. Beneath the left anterior lobe of the cerebrum much thick red and yellow putty-like matter was smeared over the membranes—clearly altered blood. The vascularity of the brain generally was normal; except in the right half of the cerebellum, which was extremely congested, and contrasted strangely with the other half. All the thoracic and abdominal viscera were normal, save the lungs, which contained a few filbert-like patches of pneumonic consolidation. Old adhesions were found in both pleuræ.

Remarks.—This case presents a sequence of conditions such as I have not before met with, and for which it is not, I think, easy to account. That fracture of the base of the

skull existed was considered probable; and hence, notwithstanding his almost complete recovery, I refused my consent to his urgent request to return home.

When the symptoms of coma and the paralysis came on, I at first thought that some part of the brain at the seat of fracture had been softened, and that effusion of blood had taken place in it. This view was contradicted by the rapid recovery; and it was supposed that the symptoms might possibly be the result of embolism—slight, perhaps, in extent, but affecting a part of the brain already weakened by shock. The pathological conditions discovered at the post-mortem showed that the symptoms were connected with the formation of abscess, whatever might have been the cause of it. The period of the formation of the abscess was probably the time at which he experienced a feeling of shivering. Instances are by no means rare of abscess in the brain substance unattended by severe or marked symptoms; but it is strange to find the formation of abscess giving rise to extreme symptoms, from which such rapid and complete recovery could take place, the abscess still continuing to increase.

There was, however, no other reasonably assignable cause for the apoplexy. The congested state of the cerebellum must have been of more recent origin, and would not account for the symptoms.

That the abscess was not stationary is, I suppose, clear, from the fact that it had made its way into the ventricle shortly before death; for, though pus had escaped into one ventricle, it had produced no irritation, and had not extended. The rapid death may be attributable to the sudden irruption of pus into the ventricle; but the cause of the rapid and complete recovery from the coma and paralysis I must leave to the consideration of the society.

V.—*Case of Diphtherial Paralysis.* By Edward Headlam Greenhow, M.D. *Read October* 22, 1869.

HANNAH A., a married woman, aged 21, was sent to me by Dr. Symes Thompson on June 29 of the present year, suffering from paralytic symptoms which obliged her to be carried into my consulting-room. She was admitted into the Middlesex Hospital under my care on July 2.

Previous History.—Had not been robust, but had never suffered from any serious illness. She had cicatrices of abscesses on the neck, and also on the right arm over the ulna, which dated from the time she was about 13 years of age. In the beginning of April of the present year she had had an attack of ulcerated sore-throat, lasting about 14 days, and was confined to bed for one week, during which time she was said to have had diphtheria; the sore-throat was worst on the left side. At the same time she had cough, attended by much expectoration and by loss of voice, so that she could only speak in a whisper. As she recovered from the sore-throat her voice became snuffling and indistinct, and she had difficulty in swallowing liquids, which, unless she sipped them slowly and carefully, were apt to regurgitate through the nose. A few days later she had begun to experience a sense of numbness and of tingling and pricking, as if of 'pins and needles,' in the tongue, palate, and lips, attended by loss of taste.

About a month before I saw her she had lost all these symptoms, and, considering herself convalescent, had walked out one day to see her mother, who resided at the distance of a quarter of a mile. Whilst walking she suddenly felt a pricking and tingling in her feet and lower limbs, with loss of power, as if her feet and legs would give way under her. Shortly afterwards she began to experience in the tips of her fingers the same sensations of pricking and numbness, which in the course of a week spread upwards to her right wrist and a little above the left. The pricking and numbness were felt both on the palmar and dorsal aspects of the hands, but most in the palms. Subsequently the fingers of her left hand became stiff, and she had aching pain extending from the left wrist as high as the elbow. The numbness in the hands gradually increased to such an extent that she

could not tell when she had hold of an object unless she saw it, and was not aware when she dropped anything unless she heard it fall. About the time of the commencement of the paralytic symptoms in the limbs her sight had also become impaired. At first it was only slightly affected, and she partially regained it after resting the eyes; but it gradually became worse and worse, until at length she was only just able to see about the room.

State on Admission.—Was unable either to walk or to stand without assistance. Even when supported by an attendant on either side she could barely stand for an instant, and when she tried to walk she moved her legs in an uncertain, shuffling manner, being unable to lift her feet, especially her left foot, from the ground. When lying down she could lift her right leg from the bed, but could only raise the left leg for a moment with much difficulty. Could move the toes freely when the feet were rested on the bed. When her feet or legs, especially the calves of the legs, were touched, she experienced the sensations of pricking and tingling. The grasping power of the hands was much enfeebled, and she laid hold of objects in an awkward manner. The sense of touch was so much impaired that she could not distinguish a stethoscope from a towel or a hand when her eyes were closed. If she had hold of any object she could not tell what its shape was, nor whether it was hard or soft, but she could distinguish its feeling either hot or cold. She could not feel being tickled with a feather either on the palm or dorsum of the hand. The muscles of the hands and of the lower limbs were emaciated and flabby. There was no tenderness on pressure over the principal nerves either of the upper or lower extremities. The fauces were still somewhat red, and when she was desired to pronounce the interjection 'Ah!' the left side of the soft palate moved much less freely than the right. There was also loss of power in the muscles of the left cheek. The pupils both responded to the stimulus of light, but the left one did so more sluggishly than the right. She could read well with either eye separately or with both eyes together, and could protrude the tongue well and straight. Her pulse was 84, feeble and compressible. The breath-sounds were healthy; the heart's action was feeble, and a faint, soft, systolic blowing murmur was audible at the base of the heart. Appetite good; tongue fairly clean; bowels sluggish; catamenia regular. Urine, sp. gr. 1017, free from albumen, but depo-

sited with heat a cloud of phosphates immediately soluble in nitric acid.

She was ordered to take the tincture of perchloride of iron with 5 minims of solution of strychnia 3 times a day, and a pill containing $\frac{1}{3}$ of a grain of extract of nux vomica and 2 grains of the compound extract of colocynth every night. She had full diet, with meat for supper and a pint of bitter ale daily.

Progress of the Case.—A week after admission she had so far improved as to be able to raise herself, though with great difficulty, from her seat, and to walk 3 or 4 steps in a shuffling manner. She now, however, complained much of pain in the left calf, which was also tender on pressure. She was still unable to distinguish objects by the touch, and when anything was placed in her hand without her seeing it she could not tell that she had hold of it, nor could she retain it in her hand without looking at it. Thus, when holding a spoon she dropped it as soon as her attention was diverted. On July 13 it was noted that she had again lost the slight power in her lower limbs which she had gained during her first week of residence at the hospital. Her grasping power and sense of touch remained impaired as before. She still suffered from the sensations of pricking and tingling in the hands, feet, and legs, but had entirely lost the pain and tenderness in the calf. The electro-muscular sensibility and electro-motility were unimpaired. She was now ordered to be galvanised from the knees to the feet, and from the elbows to the hands, on alternate days. On the 21st she could walk a few paces with assistance, had regained sufficient strength in her hands to cut her bread, and could for a short time retain her hold of an object without looking at it. She could now tell when anything was placed in her hand, but was still unable to determine its shape or character by the touch. From this time she rapidly improved, gradually lost all the paralytic symptoms, became well enough to walk in the garden, and was discharged convalescent on August 7.

Remarks. — This is a characteristic, though not a very severe, case of the paralysis that frequently follows an attack of diphtheria. As in many other cases which have been under my care, the paralytic symptoms were most marked on the side of the body which corresponded with the seat of the greatest intensity of the local disease. In this woman the diphtheritic affection had been most intense on the left

side of the throat, and accordingly not only was the paralysis most obvious on the left side of the soft palate and in the left extremities, but it affected the left cheek whilst the right one remained normal. The paralytic symptoms also appeared to spread from the seat of the local disease in the same general order as in every former case I have seen, affecting successively the muscles of the fauces, of the tongue, lips, cheek, and then of the eyes and limbs. In many cases it is true that by no means the whole of these muscles are implicated, for in some the fauces alone are paralysed, and in others the muscles of the tongue, lips, and cheeks escape, whilst the sight is impaired and the limbs lose their power. In some cases, on the other hand, muscles are paralysed which were not affected in this woman; but still in my experience, in as many of these muscles as the paralysis appears it is developed in the order mentioned. I should except, however, with regard to this case, if the patient's statement may be relied on as strictly accurate, the appearance of the paralytic symptoms in the lower extremities earlier than in the upper ones. This has certainly never occurred in any of the cases in which I have watched the development of the paralysis in the limbs, and I am rather inclined to doubt whether the woman may not have overlooked the impaired sensibility of the fingers, especially in its earliest stage, until her attention was compelled to the much more obvious loss of power in her feet and legs. I should not, however, omit to mention that, although it is contrary to my own experience, Trousseau, in his admirable 'Clinical Lecture on Diphtherial Paralysis,' assigns the same order of appearance to the paralytic symptoms in the limbs as was affirmed by this patient; for he says that, when the paralysis affects both the upper and lower limbs, it generally begins first in the lower extremities.

Diphtherial paralysis has by some persons been spoken of as akin to the paralytic affection (motor asynergy) commonly known as loco-motor ataxy. But, although there are some points of similarity between the disorders of movement frequently observed in the two diseases, there are also great differences between them, and they arise from quite different causes. In motor asynergy they are due to loss of co-ordinating power, often unaccompanied by any sensible emaciation of the muscles or diminution of real muscular force; whilst in diphtherial paralysis there is usually considerable emaciation and flabbiness of the muscles, and more

or less complete real loss of muscular power. In motor asynergy the patient's chief difficulty in walking is in setting out, or in attempting to change the direction in which he is going; and, when once fairly started, he can sometimes walk a considerable distance in a straight course without inordinate fatigue. In diphtherial paralysis, on the contrary, even when the patient is able to walk a few paces with or without help, the power of walking diminishes with every step taken, and, unless supported, the patient soon falls to the ground. There is also a great difference in the effects of galvanic treatment on the two kinds of nerve disorder. In diphtherial paralysis the application of galvanism to the paralysed parts is frequently most serviceable, as it was in the case now brought under the notice of the society; whereas in motor asynergy it has been in my hands not only useless towards cure, but has in several instances aggravated the sufferings of the patients. Lastly, there is the essential difference between the two diseases, that motor asynergy, once developed, has hitherto appeared to be absolutely incurable, whereas diphtherial paralysis is often rapidly amenable to proper treatment, and the subjects of it, in the large majority of cases, ultimately make a perfect recovery.

VI.—*Case of Ascites, treated with Copaiba, Quinine, and Iron.* By Henry Thompson, M.D. *Read November 12, 1869.*

THE following report is a sketch only of a very long case—far too long to read in detail; it describes the principal features of the ascites alone, and merely alludes to the existence of concurrent affections.

George W., a coachman, æt. 60, formerly of intemperate habits, was admitted into the Middlesex Hospital under my care on November 30, 1868.

The patient had always been in excellent health until July last, when he began to lose appetite and strength and to fall away in flesh. At the end of September he noticed that his

feet were swollen, and in 3 weeks the abdomen became sensibly enlarged. From that date the œdema and the abdominal enlargement gradually increased until the day of admission.

State on Admission.—Much emaciation; anorexia; thirst; great distension of abdomen, which fluctuates freely everywhere; moist sounds in front of chest and over left back; dulness and deficient breath-sound at left base posteriorly; considerable dyspnœa; distressing tightness across epigastrium and hypochondria; heart-sounds muffled, but without definite murmur; urine scanty, non-albuminous; girth at umbilicus, 39 inches.

December 1.—Slept well overnight, but the distension and distress were so great during the day that it was thought impossible to delay any longer the operation of paracentesis, which was performed by Mr. Lawson; 17 pints of transparent fluid were drawn off.

2.—On examination, the surface of the liver was found to be irregular, knobby, and sinuous; in particular, one large excrescence projected in a conical form obliquely over the epigastrium, in the direction of the umbilicus. On account of this extreme irregularity it was difficult to describe with exactness the lower measurements of the liver; the upper level of dulness in the right mammary line was fixed at $2\frac{3}{4}$ inches below the nipple.

Clearly, we had to deal with ascites pure and simple, dependent on what was essentially a contracted liver, and uncomplicated either with disease of the kidney or with any ascertained form of heart-disease.

The patient recovered well from the operation, but on the 4th there were unmistakable signs of fluid in the abdomen. On the same day the wound re-opened and discharged freely. On the 10th the discharge ceased, and on the 12th the wound was found perfectly closed. During this period the abdomen remained stationary in size.

On December 18 the girth at the umbilicus was 35 inches, and on the 26th 38 inches.

On January 4 there was still increasing enlargement, the surface began to look smooth and glistening, and there was considerable shortness of breath.

On January 18 the girth, taken this time midway between the umbilicus and the ensiform cartilage, amounted to 41 inches; and on the same day paracentesis was again performed; 20 pints $5\frac{1}{2}$ oz. of clear yellowish liquid were removed.

On the 21st there were distinct dulness on percussion and fluctuation in the flanks.

On the 23rd the girth at the umbilicus reached 38 inches; fluctuation was very distinct in the median line 3 inches above the umbilicus, and on the 25th—7 days after the operation—as far as the ensiform cartilage.

On February 9, 15, and 18 the girth at the umbilicus measured respectively $39\frac{3}{4}$, $40\frac{1}{2}$, and $41\frac{3}{4}$ inches. During this period he was passing no more than about 14 oz. of urine daily.

On February 20 paracentesis was performed for the third time, and 18 pints of turbid yellowish fluid withdrawn.

On the 25th the abdomen was again swollen, and fluctuation well marked.

On the 29th the girth at the umbilicus was 39 inches.

Up to the beginning of March I had in vain resorted to a whole host of reputed remedies, including tonics, hydragogues, and a long list of diuretics which it would be wearisome and useless to enumerate. I now bethought myself of copaiba, a remedy once in some repute as a diuretic, but at the present day fallen into disuse. I had seen it strongly recommended* as having proved eminently successful in dispersing ascites, and I resolved to try it as a last chance. At first, on March 2, only 15 minims of copaiba with 10 minims of liquor potassæ were exhibited once a day; then the same quantity twice daily. On March 11 the dose was raised to 20 minims of copaiba every 6 hours. The urine now increased in amount, and on the 12th there was a diminution of $1\frac{1}{2}$ inch in the girth. On the 14th I superadded 2 pills composed of quinine, sulphate of iron, and the pil. scillæ comp. of the Pharmacopœia to be taken every 6 intermediate hours. From this time the improvement was exceedingly rapid, as the following record will show:—

March 17.—Girth at umbilicus $37\frac{1}{2}$ inches; urine 46 oz. in 24 hours.

18.—Girth $37\frac{1}{4}$ inches; urine 48 oz.

20.—Girth 37 inches.

23.—Girth 36 inches; urine 86 oz.

26.—Girth $35\frac{1}{4}$ inches; urine 70 oz.

31.—Fluctuation has entirely disappeared from the uppermost surface of the abdomen, and is only perceptible to a slight amount in the lowlying parts. No œdema of the feet.

* 'Lancet,' February 27, 1869.

April 3.—Girth 32 inches; urine 70 oz.

8.—Girth 31½ inches.

26.—Is able to walk in the garden without fatigue. Passes about 3 pints of urine daily.

May 10.—Discharged, and made out-patient under Dr. Liveing.

Since that time, with one intermission, he has continued to take the copaiba regularly.

Seen by me in August last, and by Dr. Greenhow in October. On each occasion he declared himself perfectly well.

Remarks.—At one time in its progress, if not from its very beginning, nothing could be more utterly hopeless than the apparent prospects of the present case. And yet the man recovered, under the use of copaiba, quinine, and iron. Now, assuming a cure of the ascites, and not a mere coincidence, how are we to apportion the amount of credit due to each of the foregoing remedies? We cannot give the foremost place to the iron, for iron had been abundantly tried during the earlier stages in three different forms and found unavailing. The quinine possesses stronger claims, and it may possibly have done good service as a powerful auxiliary, but not, I think, as a principal, for the abdomen had begun to shrink and the urine to increase before its administration. In whatever way quinine and iron do good in these cases, it can hardly be by enormously augmenting the quantity of urine passed. Now, in this case, the diminution of the abdomen and the augmentation of the urine went on coincidently and commensurately, and it is more reasonable to suppose that the absorption of the fluid was owing to the increased flow of urine, than conversely that the urine increased in consequence of the absorption of the fluid. Lastly, the patient, according to his own account, has remained perfectly well ever since his discharge, under the use of the copaiba alone, without the quinine.

On the whole, we are bound to assign the main agency to the copaiba, which would appear simply to have acted as a sure and steady diuretic, allowing time for the overtaxed vessels of the portal system thoroughly to recruit themselves, and so enabling them at once to re-absorb the ascitic fluid and to bar its re-accumulation, at least for the time being.

I am aware it may be said that, after all, the cure is incomplete and the prognosis, at best, unpromising. It is, indeed, almost inconceivable that the copaiba can have

modified the primary condition of the ascites—the disease in the liver itself. As little can it be imagined to have influenced any collateral conditions, which may have helped to determine the development of the ascites. It would seem only to have held in check the secondary conditions—engorgement of the blood-vessels and excessive blood-pressure. If then, it may be urged, the man discontinue his copaiba, those conditions may come into play again, the vessels may be again overstrained, and the ascites may return. On the other hand, it may be replied, he has once done without the medicine for a limited interval subsequently to his discharge, and he may be able to do without it for a longer period—how long it is impossible to say. At any rate, to all appearance, it is a cure as far as it goes; and, whatever come to pass hereafter, it is a great point gained if the copaiba has already added many months to the life of a man who was undoubtedly dying when it was first administered.

VII.—*Cases of Ascites, treated with Copaiba.* By Robert Liveing, M.D. Communicated by Edward Headlam Greenhow, M.D. *Read November* 12, 1869.

THE two following cases are intended to illustrate the value of copaiba as a diuretic in the treatment of ascites.

Case I.

Cornelius C., a shoemaker, aged 50, was admitted into the Middlesex Hospital on June 22, 1869, under the care of Dr. Goodfellow. His previous history is as follows:—He had enjoyed pretty good health until June 1868, having up to that time never suffered from any serious illness. He then, for the first time, noticed that his face and legs began to swell, and that his urine was scanty and high-coloured. In October 1868 he was admitted into Charing Cross Hospital with general anasarca, and remained under treatment

about five weeks, when he was discharged much relieved, the œdema having nearly disappeared.

About a month before his admission into the Middlesex Hospital the general anasarca returned; and when admitted his appearance was that of a man suffering from chronic Bright's disease. There was general œdema, especially of the scrotum and lower extremities; the abdomen contained a moderate quantity of fluid. Pulse 72. Heart-sounds normal. Respiratory sounds feeble, with a little loose crepitation heard over the bases of both lungs behind. The urine, which was pale, acid, and of specific gravity 10·15, contained of precipitated albumen about a quarter of its bulk; when examined under the microscope, numerous thoroughly fatty and granular casts were visible. He was ordered purgatives and a mixture containing acetic acid and liquor ammoniæ acetatis. Under this treatment he passed a large quantity of urine daily, but without any improvement in his general symptoms. On two occasions, during the month of August, his urine suddenly diminished enormously in quantity; and this diminution was attended with symptoms of partial uræmic poisoning, which disappeared coincidently with the passage of larger quantities of urine.

On September 1 he came under my care. His abdomen was then distended with fluid, his legs were very large, hard, and œdematous. He passed the greater part of each day in bed, occasionally sitting up in a chair by way of change, but was unable to walk about the ward of the hospital. He complained of great weakness and shortness of breath; and the amount of albumen in his urine had greatly increased since his admission, for, when tested, one-half its bulk was found to consist of albuminous precipitate.

On September 10 he was ordered 10 minims of copaiba, with a little liquor potassæ in caraway water, thrice daily. This treatment had the immediate effect of increasing the quantity of urine passed, and in a few days a very perceptible diminution was evident in the size of the abdomen and legs. His health rapidly improved, and he was soon able to walk about the wards with comfort.

On October 12 he was discharged. The anasarca and ascites had entirely disappeared, the urine still remaining albuminous.

He was seen by me on November 2, and there was then no return of the dropsy.

Case II.

Thomas M., a sallow man, aged 40, was admitted into the Middlesex Hospital under my care on September 2, 1869.

His previous history is as follows:—Seven years ago he had a severe fall on his back, and was admitted as an in-patient into St. George's Hospital. This fall, he says, was followed by the passage of florid blood in his urine. He had indulged freely in alcoholic stimulants, and habitually suffered from lassitude, low spirits, and constipated bowels. During the three months previous to his admission into Middlesex Hospital he said that he lost flesh considerably, and noticed that his abdomen was increasing in size. This was accompanied with some pain in the loins and the passage of florid blood in the urine, and several attacks of epistaxis.

When admitted, his pulse was 78 and feeble, temperature 98·1. A soft systolic bruit was heard over the apex of the heart; he was troubled with a short dry cough, and great 'shortness of breath;' the respiratory sounds were normal. His abdomen was much distended with fluid, but there was no general anasarca. His urine, which was scanty in quantity, acid, and of specific gravity 10·14, contained about one-fourth its bulk of precipitated albumen.

On admission he was ordered nitrohydrochloric acid with calumba, and a purgative containing compound jalap powder. A few days later I ordered the tonic medicine to be discontinued, and ten minims of copaiba with liquor potassæ and caraway water to be given thrice daily. A considerable increase in the amount of urine followed immediately upon this change of medicine, and in 3 or 4 days there was a very perceptible diminution in the size of the abdomen. He continued to progress rapidly, and was soon able to walk about the ward.

On September 25—that is, twenty-three days after his admission—the fluid had entirely disappeared from his abdomen, which had resumed its natural size.

On September 28 he was discharged, the quantity of albumen in his urine being about as great as when he was admitted.

VIII.—*Case of Hereditary Syphilis, with Paralysis of both Arms, appearing after vaccination.* By J. J. H. Bartlett. Communicated by Berkeley Hill. *Read November* 12, 1869.

Ada H., æt. 3 months, an only child, admitted a patient at the Kensington Dispensary, October 6, 1869.

Family History.—Father and mother both living. The mother miscarried at the 2nd month 14 months ago. Has had an eruption for some years on the face, but this is not now present. Her hair has fallen off of late, and she has had sore-throat, with frontal headache, worse at night.

The father suffers from sore-throat. No eruption.

Present Attack.—The mother states that when the child was born it was quite healthy, and continued so until it was vaccinated, which operation was performed on September 6, 1869 (when two months old), the lymph being taken from capillary tubes.

A week after the operation the mother noticed an eruption on the child's chin. The ears then became affected, and later the buttocks and legs.

At the same time the child began to snuffle and run at the nose, and this increased so much that on October 6 the child could hardly suck.

During the last week the mother has noticed that the child has gradually lost power in both arms, especially the right.

The child has never had fits, and has received no blow or fall.

When the weakness in the arms first came on there was some twitching in the left. The mother did not notice whether the thumbs were bent on the palms of the hand.

Present State.—The child is not much emaciated; fontanelles neither elevated nor depressed. Some flattening of the bridge of the nose, and discharge from nares. There is a mucous tubercle on the left angle of the mouth. There is no facial paralysis. Pupils equal; no drooping of eyelids. On the chin there is a large patch of copper-coloured eruption, covered with fine scales.

The child lies on its mother's lap, both arms hanging by its sides, with no power whatever in the right arm, and very little in the left.

On the arms being raised and allowed to fall, they drop

heavily; and on their being pricked or pinched, the child cries loudly, but the arms remain perfectly motionless. There is no difference of temperature in the limbs, no rigidity or contraction.

On movement, the arms appear very painful, as the child cries loudly on their being handled.

There is some slight movement of the fingers of both hands. There is some swelling on the most dependent part of forearms; and a brawny condition of the parts, most so on the left side.

On the left arm there are two cicatrices of vaccination, which appear perfectly healthy.

On the inner aspect of both arms are numerous copper-coloured patches, covered with scales, which are also present on the thighs and legs.

On the buttocks and genitals there is an erythematous eruption, in which there are numerous papules.

The child moves its legs with ease and force.

The mother was ordered small doses of bichloride of mercury and iodide of potassium; the child to have ung. hydrarg., diluted to half strength, spread on flannel, and sewn round the right thigh.

October 10.—The child is much better; has certainly gained flesh. Eruption fading everywhere. Snuffling and coryza still present, but much improved; the child still cries on being moved. Power over right arm much improved; the left is also improved, but less so than the right.

The mercurial ointment having produced some inflammation in the severity of its application, it was ordered to be diluted to one-eighth its original strength, and the inflamed part to be dusted over with oxide of zinc and starch. The mother's headache is much better.

15.—Has gained perfect use of both arms, and no longer cries on the parts being handled; and, with the exception of the coryza, and the remains of the eruption on the genitals, the child is convalescent.

The mother has quite lost her headache and gained flesh.

Remarks.—The chief points of interest in the above case are—

1st, the appearance of the symptoms after vaccination; and 2ndly, the paralysis of the upper extremities.

That it was not a case of syphilis inoculated by vaccination is, I think, proved by the early appearance of the eruption and coryza, which, if the disease had been caused

by inoculation, would not have appeared until much later. By the absence of induration in the cicatrices, and their perfectly healthy appearance.

The case appears to me to be one of those in which the vaccinal fever raised the previously dormant disease into activity.

2ndly.—But it is in the paralysis of the upper extremities that the chief interest rests.

That it was not a case of simple infantile paralysis is, I think, shown—

1st.—By its very gradual invasion.

2ndly.—By the rapid recovery under specific treatment.

It appears to me to have been one of those cases of syphilis in which paralysis occurs early in the disease, and during the outbreak of the exanthematous eruption. Mr. B. Hill states in his work on syphilis that disturbances of the functions of the brain and nerves often accompany the early days of the eruption; and he quotes Zeissel to the effect that a man æt. 20 was suddenly attacked with paraplegia at the outbreak of a papular eruption, and also refers to the case of a patient who was seized with paralysis of the portia dura on the appearance of the syphilitic eruption. All were cured in a short time by mercury.

The paralysis was most probably caused by some deposit high up on the spinal cord, and the lesion to have pressed almost equally on both halves, as both arms were affected. That the pressure was not great is shown by the lower limbs not being affected, which agrees with Brown-Sequard's theory, that the nerve-fibres of the upper extremities are more superficial in the spinal cord than those of the lower. Zeissel supposes there is inflammation of the brain cord or membranes, resembling that of punctiform syphilitic iritis.

But the cases in which paralysis occurs in hereditary syphilis are very rare (Diday does not mention any in his work on the disease), and for this reason I think that the present case is worthy of attention.

IX.—*A Case in which Colotomy was performed for the relief of Cancer of the Rectum.* By G. W. Callender. *Read November* 12, 1869.

THE following case illustrates the advantages gained by opening the colon in cases of cancer of the rectum, and bears out the statements made by Mr. Curling in the various communications in which he has advocated the operation.

John S., æt. 34, tailor, from Essex, had been apparently well until about seven weeks before his admission into St. Bartholomew's. He then had pain and difficulty with the action of his bowels, and this has continued ever since, laxative medicine being constantly required.

August 16, 1869.—He is a fairly well-nourished man, but has lost flesh latterly. He passes blood from the lower bowel. On examining the rectum, there was found a painful scirrhous mass surrounding the intestine, and projecting into its canal about two inches above the anus, the stricture being such that the finger could not be passed through it. His chief and constant complaint was of the local pain, which nothing seemed to relieve—pain which was aggravated before and during defæcation, but from which he suffered at all times, especially at night. After being for some time under palliative treatment, he was on September 3 unable to pass fæces, and, despite treatment, the colon became rapidly distended, the abdomen swollen, tense, and painful, and his countenance expressive of much anxiety. Under these circumstances, three days later, I thought it well to open the descending colon, which I reached from the loin, and from which, when punctured, large quantities of fæcal matter were evacuated.

He convalesced after the operation without an unfavourable symptom, having been at once relieved from the pain in the rectum, which had been his chief trouble. He is now, November 12, two months after the operation, up daily, and has greatly improved in his general health.

The accession of grave symptoms of obstruction of the bowel rendered urgent the operation, which had previously contemplated; but had such symptoms not arisen it qually my intention to have recommended colotomy as ns of relieving the patient's condition. For some

time preceding the operation he had suffered most severely from local pain—pain occasioned not only by the irritation of fæces passing through the strictured rectum, but an abiding pain, which seemed due to persistence of the irritation from fæces pressing down upon the stricture, and from contractions, induced perhaps thereby, in the powerful muscles around this portion of the bowels.

With regard to the steps of the operation, in which no great difficulty can ever be experienced, it may be well to mention the considerable depth at which the intestine lay, covered, as it was, by accumulation of fat in the subcutaneous tissues, and in the tissues which lay under the transversalis fascia, and the consequent tension it was subjected to in attaching it by sutures to the skin-margins of the wound, and through which tension it happened that the sutures tore away, and some risk was incurred of the infiltration of fæces into the loose tissue surrounding the bowel.

The relief of the patient was most marked: first, with regard to the urgent symptoms of obstruction, for indeed the operation had no effect whatever upon his system except in relieving it of the discomfort caused by this obstruction; secondly, in the removal of all pain and misery about the rectum, not only for the time, but for some months after. There was, it is true, some trouble from the accumulation of fæces and of mucus, I presume chiefly in the bowel below the artificial anus; but as this filled up the bowel, it presently began to discharge from the lower opening in the loin, and continued to do so by a reversed peristaltic action.

The discomfort to the patient from the artificial anus is practically none. The bowel discharges at intervals, and the discharge can be readily dealt with.

Indeed, did any discomfort exist, it would be more than counterbalanced by the fact that his life was saved by the operation, and that he was entirely relieved from all pain and local distress. Of course the cancer disease is extending; but it is making progress without those serious complications, of obstruction, of threatened perforation of the intestine, and of peritonitis, which would otherwise have attended it; so that I am clear, as Mr Curling has stated of other cases, that the patient's condition has been greatly bettered by the operation. In a case which was under the care of Mr. Paget I think he will justify me in stating that the results of similar treatment were equally satisfactory. I have before me notes of twelve cases in which colotomy was practised for

cancer of the rectum, and, although 3 died within 21 days after the operation, there is not one case in which death was due to the operation, which, it seems to me, is a surgical proceeding apparently free from great risk to life.

X.—*A Case of Confluent Acne, caused by Bromide of Potassium.* By William Cholmeley, M.D. *Read November* 26, 1869.

Henry C., aged 13 years, was admitted from the Caledonian Asylum into the Great Northern Hospital under my care, on August 30, 1869, suffering from epilepsy.

He was a short, large-limbed Scotch lad, pallid, dark-haired, of leuco-phlegmatic temperament. The fits had come on very lately, and without any known cause; were of varying, but not marked, severity.

He was given the bromide of potassium in gr. viij. doses three times a day, and on September 6 the dose was increased to gr. x. At first there was slight improvement, but afterwards the fits occurred more frequently, and were more severe, and, as they always came on soon after a meal, the medicine was changed to a mixture containing rhubarb, magnesia, and ammonia, but without any marked benefit; and on September 20 my colleague, Dr. Crucknell, who took charge of my patients during my absence from town, determined to try the effect of the bromide in larger doses, beginning with gr. xv., and increasing it by the 29th to gr. xxv., three times a day. The fits at once diminished both in number and severity, and marked benefit continued for some days. When the bromide had been taken in the full doses for about a week an eruption appeared on the lad's face and legs. It was described to me as having the appearance of varicella, but that the vesicles, instead of drying up, became in many places confluent, the clusters so formed continuing to enlarge, and showing numerous points of suppuration. At the same time the patient complained of general *malaise* [illegible] in in the head, and the epileptic attacks again became

more frequent; the bromide was therefore discontinued, and nitrate of silver was given, and again marked benefit followed.

When I resumed charge of the case on October 16 there was a band of eruption on each side of the face and across the forehead, and the front and outer side of each leg was thickly covered with it from just below the knee to the ankle. On the face the skin at the seat of the eruption was slightly reddened, and covered with closely set, irregularly circular, light-brown crusts, considerably elevated above the surface, varying in size from a pea to a fourpenny-piece, flattened, rather hard, and so adherent that they could not be separated without causing bleeding. On the legs the affection was in a more active state; the skin all round and between the spots of eruption was of a vivid red colour, exquisitely tender, hot, and painful, especially on any movement of the legs; the pain was of a burning and tingling character, and was at times very severe; the elevations formed by the eruption varied much in size, as did those on the face, but were more irregular as to shape, the largest, which were larger than any on the face, being irregularly oblong; the smallest, which were also the most recently formed, were about a quarter of an inch in diameter, and consisted of a circular, prominent, convex vesicle, filled with a milky white semi-fluid matter, seated on a slightly elevated and slightly hardened base, and surrounded by a vividly red areola; one or more broken hairs passed through the vesicle; the larger spots were flattened elevations, covered by moist flaccid cuticle, or thick light-brown crusts, and surrounded by dark-red areolæ; when the flaccid cuticle or the brownish crust was removed, the surface beneath presented, to borrow an expression from M. Voisin, 'numerous millet-seed-like yellowish-red protuberances.'

While the eruption was in this state I felt at a loss to know what to call it. I knew that acneiform and erythematous eruptions did sometimes appear when the bromide was being taken, but I had never seen under any circumstances an eruption exactly like that in this case. On carefully watching, however, the fresh points of eruption that continued to come out, and especially as the severe irritation of the skin subsided, the difficulties of diagnosis cleared away, and it became apparent, to my mind, that I had only to do with an unusually severe form of acne. It may be here stated that the greatest relief to the burning heat and pain was obtained from a lotion of bismuth and decoction of

poppies. When a new point of eruption appeared, it began by the formation of a minute pimple, which was red, hot, tender, and painful; in a very short time a small, conical, yellowish-white vesicle appeared on its summit, which in all those which I examined was pierced by a hair; on rupturing the cuticle with a needle, and applying gentle pressure, a small quantity of a semi-fluid, yellowish-white, smooth substance was obtained, which on examination by the microscope and treatment with ether proved to be sebaceous matter, and among which was found the bulbous root of the hair. If the vesicle was let alone it rapidly increased in size, and became flatter and less tense, and then its contents were found to be more fluid, and to consist chiefly of pus-cells, epithelium, and altered blood-corpuscles. The crusts of the older spots when placed in ether softened, and were partially dissolved; the ether left on drying a greasy stain, and the remaining part of the crust was found to consist of epithelial scales and damaged cells and blood-corpuscles.

During the last three weeks very few fresh points of eruption have come out, and the older eruption has almost all disappeared, the crusts dying more and more, and then falling off, leaving a rough scaly surface, with dark-red stains, many of which have already disappeared. A few minute spots of eruption appeared on the arms and on the lower part of the thighs, but all died away in two or three days. The patient was almost confined to his bed during the active period of the eruption, not from feverishness or any disturbance of the general health, but solely on account of the severe pain caused by any movement of the legs.

When, after 7 weeks' duration, the eruption had nearly died away, the bromide was again given in full doses, and on the 6th day the eruption again broke out, chiefly on the legs, movement again becoming very painful.

Remarks.—It is well known that cutaneous eruptions sometimes appear in patients who are taking the bromide of potassium, and that these eruptions are generally acneiform in character. But, so far as I know, they are rarely severe, are easily recognised, and do not affect the limbs; the unusual appearance of the eruption, its extreme severity, and the affection of the legs in the present case have therefore seemed to me to warrant my bringing it before this society. That it was a form of acne I do not doubt, and I suppose we may put it down as excited by the bromide. Consider-

ing how extensively the bromide is now used by us, the appearance of acne during its exhibition may be said to be comparatively infrequent, but in France it seems to be a very common occurrence. M. Voisin in his account of the treatment of 24 epileptics by bromide of potassium says, '*All* the patients were affected by different degrees of acne on various parts of the body, but especially on the face, the scalp, and the back.'* And M. le Dr. Falret goes so far as to say that, 'as a rule, favourable results only begin to be noticeable when the eruption of pimples (*boutons*) appear on the skin and on the face, and, in general, patients who have no eruption on the skin derive no benefit from the use of the bromide.' † But our brethren in France appear to give the salt in much larger doses than we are in the habit of employing. M. Voisin speaks of 10-gramme doses, and M. Falret says that from 4 to 11·5 grammes may be given, and that he usually gives from 7 to 9 grammes in the 24 hours. On the other hand, MM. Martin-Damourette and Pelvet state that 'the eruption of acne, which is the rule in iodism, is of exceptional occurrence in bromism;' ‡ and they seem to think that when it does appear it is caused probably by the bromide containing also some iodide. How far this may be the case I do not know, but it seems at any rate that the ordinary bromide does not seldom excite cutaneous eruptions, and chiefly when given in full doses. That it has a stimulating power over the skin structures seems to be further proved by the fact that obstinate acne sometimes entirely disappears during its employment. In one case under my own care, severe acne of the face and shoulders, of four years' standing, was entirely got rid of while the bromide was being taken, in moderate doses, for what appeared to be a nervous cough, and, though some months have since passed, the eruption has not reappeared; and my friend Mr. Kesteven has recorded a somewhat similar case.

In an article which I have not yet seen, but with some notes of which Dr. Tilbury Fox has kindly furnished me, Voisin has described five forms of eruption which he thinks are induced by the bromide—one furuncular; a second, eczematous; a third, acneiform, like acne induratum; a fourth, like erythema nodosum, but more persistent; and a fifth,

* 'Bulletin général de Thérapeutique,' tome lxxi. p. 103 (1866).
† Ibid. tome lxxvi. p. 40 (1869).
‡ Ibid. tome lxxiii. p. 297 (1867).

somewhat like the eruption in my case. 'It appears,' he says, 'in the form of oblong or roundish swellings on the lower extremities, of a rose or cherry-red colour, which become yellowish in consequence of certain millet-seed-like, yellowish prominences upon them, which are aggregated acneiform pustules.' The swellings have hard bases, and are unaccompanied by swelling of the lymphatic glands or by feverish symptoms; they are painful on movement, and the pains may be so severe as to deter from any movement of the legs. But, unlike what occurred in my case, he observes that there are seldom more than 2 or 3 of these swellings present at one time. Thick scabs form, he says, from the fluid that slowly trickles from the swellings, and after the scabs have fallen persistent yellow scaly patches remain, the process taking from a month to a year. Voisin had noticed this form of eruption in 6 out of 96 epileptics under the bromide treatment. The eruption thus described certainly much resembles that present in my patient, and I do not know of any other recorded cases.

I am loath to add even one to the terrible list of names with which writers on skin diseases burden us; but it seems to me that the eruption which I have attempted to describe does require, or at least deserve, a distinctive epithet, and I would suggest that 'Acne confluens' would be a fairly descriptive name for it.

XI.—*Cases illustrative of the Treatment of Syphilis by Hypodermic Injection.* By F. Oppert, M.D. *Read November* 26, 1869.

Case I.

ANNE ——, æt. 24, a dispensary patient, was first seen on
6. 1869. She had been infected three months
imary symptoms of syphilis were healed.
er at the left labium vulvæ, where
s. The lymphatic glands in the

left groin are found of slightly increased size. Part of the face, arms, and legs are covered with a copper-coloured maculo-squamous eruption, with very little thickening of the skin; there is a whitish ulcer the size of half a pea on the right tonsil. Patient has not been under treatment before; she does not look very pale, but is not so well as formerly. Injection of gr. $\frac{1}{12}$ of perchloride of mercury was prescribed. For this purpose I had a solution of sublimate prepared containing one grain to a drachm; five drops consequently contained the required dose. Patient had very slight pain from the point of the syringe, which was brought sufficiently deep under the skin of the flexor side of left forearm.

September 7.—Injection repeated.

9 and 10.—The same. Patient looks a little better, and the spots in the face are decidedly paler.

13 and 14.—The same dose was injected, the place being changed from the arms to the neck and chest.

16.—The dose was increased to $\frac{1}{8}$ gr. This causes a little more pain.

17 and 20.—Another injection was made. Patient has had $\frac{3}{4}$ gr. injected; the gums are slightly swelled; she is ordered to rinse her mouth frequently with a lotion of nitric acid, alum, and water. The face looks much better, the spots are getting very pale, the throat is quite restored to its normal state.

Six more injections were made on September 23, 27, 30, and October 4, 7, 8.

11 and 12.—$\frac{1}{6}$ gr. was injected, causing a little more pain. The gums were a little more affected, but the eruption had disappeared on the day last named and had only left its usual marks. At the places where the remedy had been injected indurations were felt.

Case II.

Kate O., æt. 23, for five weeks an inmate of the Marylebone Infirmary, was, by the kind permission of Dr. Randall, subjected to a similar treatment. Was seen on October 10. Five months had elapsed since she had primary syphilis of the generative parts. She had a maculo-squamous eruption, the greater portion of the face was discoloured, as also the extremities. The skin considerably thickened. Had taken pills of green iodide of mercury (about 10 grains) for the last fortnight without the least effect being produced. A twelfth of

a grain was injected on this and the following days. After the third injection the eruption was decidedly paler.

16 and 17.—$\frac{1}{10}$ gr. was injected.

18, 19, 20.—$\frac{1}{8}$ gr. The gums became slightly affected; the patient had a less anæmic appearance, and was altogether improving. An astringent lotion was ordered.

21 to 24.—$\frac{1}{6}$ gr. was used for injection. On the last-named day the patient presented a very favourable appearance. Her complexion was much clearer, though some spots remained. Abscesses, however, were forming on both arms, and the injections were given up. The patient had had $1\frac{3}{4}$ gr. of sublimate injected. She was put on bark and chlorate of potash.

She was seen on November 17, when it was evident that she had a relapse; the face had again become discoloured; a sore covered with brown scabs had formed at the right angle of the mouth. No throat or mouth affection was present. She continues the last-named treatment.

Case III.

Robert X., a bootcloser, æt. 49, a dispensary patient of cachectic appearance, had primary syphilis 22 years ago, and has been under my care and observation for three years, with intermissions. He had formerly felt numbness of the left arm, and complained of giddiness, but had improved under the use of iodide of potassium. Afterwards he had a mixed eruption on his arms and legs; small copper-coloured spots with a tinge of bluish colour, some being covered with thin scabs. For this eruption I prescribed iodide of mercury, which he used last year, with intermissions, for 4 weeks, in half-grain doses. The eruption got better, but did not disappear altogether; the treatment had to be discontinued on account of symptoms of indigestion.

Patient presented himself again on October 7, 1869, the eruption having become worse recently. He had $\frac{1}{12}$ gr. injected on 3 following days; was then absent for 2 days.

13 and 14.—The dose was increased to $\frac{1}{8}$ gr., and, after a pause of 2 days, to $\frac{1}{6}$ gr. on 17th and 18th. The last two injections, however, caused so much pain that the patient wished to discontinue the treatment. The spots had become much paler, more so than under the former treatment by iodide of mercury, and had only half their previous size. A few days

after the last injection had been made patient told me that after he came home he felt very unwell, and had 'trembling all over.' He presents a less cachectic appearance up to the present time than formerly. Altogether he had only $\frac{5}{6}$ gr. injected.

Case IV.

A. B., a private patient, applied to me on October 1. He had a chancre at the frenulum penis 4 months ago, which healed with slight induration, glands not swelled. For a fortnight he has had some spots on the forehead; others are found, on inspection, at the nape of the neck. There are a few sore places on the top of the head; the hair is falling off. The inner side of the right hand is slightly affected with psoriasis. The throat is a little sore, there is a small-sized ulcer on the left tonsil, and an anal condyloma. A twelfth of a grain of sublimate was injected for 3 days on the forearms, the syringe introduced by Dr. Buzzard, with spear-shaped point, being used. The injections caused little pain, which, however, increased sometimes after the patient went home; $\frac{1}{8}$ gr. was injected on the next following 3 days; patient looked strikingly better after the fifth injection; the spots became paler, psoriasis not yet improved.

One-sixth of a grain was used for injection on October 7, 8, and 9, when the gums became slightly affected. Patient was ordered to use a gargle and rinse his mouth with an astringent lotion.

10.—The dose for the injection was reduced to $\frac{1}{10}$ gr. The throat was now quite right, the condyloma gone, the spots pale, the psoriasis had become better. The injections were continued for 5 days, and $\frac{1}{12}$ gr. was afterwards injected for 3 days more. On the eighteenth day the treatment was discontinued and the patient considered cured; $1\frac{7}{8}$ gr. had been injected; a blister which had formed at one place was healed.

Case V.

B. B., another private patient, came under the treatment at an earlier stage—viz., 3 months after infection. He had ulcerated throat and a few spots in the face. The treatment lasted from October 10 to November 5, with 4 days' intermission, the patient being out of town. Two grains of sub-

limate were injected in $\frac{1}{10}$ gr., $\frac{1}{8}$ gr., and $\frac{1}{6}$ gr. doses, the places for injection being at the arms, neck, and side of the chest. The symptoms having disappeared, and the patient looking more healthy, on November 5, the injections were discontinued, but iodide of mercury gr. ss. ordered to be taken twice a day for a week to prevent relapse.

Case VI.

L. R., an unmarried female, æt. 23, was first seen on September 21, at the dispensary. She had been infected six weeks previously, and a slightly indurated sore, now healing, was found at the right labium vulvæ. She is pale, not badly nourished. A whitish ulcer is on the left tonsil, a maculo-squamous eruption of characteristic colour has appeared here and there in the face, on the arms, and legs. Some of the spots have the diameter of nearly half an inch. She has leucorrhœa. Had $\frac{1}{12}$ gr. injected, and extr. sarsæ liquid. ʒj. was ordered to be taken twice a day in water.

22 and 24.—An equal dose was injected. After the third one she already looked better, the spots slightly paler.

27, 28, and 30.—The injections were continued, when the throat was found cured; the spots very pale, but visible.

Patient neglected to attend for a week, and when she presented herself on October 7 a kind of relapse had taken place; there were more spots on the skin; $\frac{1}{12}$ gr. of sublimate was injected.

8, 11, and 12.—The same; there was a considerable swelling at the right arm, which, however, did not lead to an abscess subsequently; it disappeared in about 10 days, leaving an induration.

14.—$\frac{1}{8}$ gr. was injected.

15, 18, 19, and 21.—The same. The gums became slightly swelled, and a small white ulcer formed near the tip of the tongue. An astringent lotion for rinsing was ordered.

22, 25, and 26.—Injection reduced to $\frac{1}{12}$ gr.

28.—$\frac{1}{6}$ gr. injected.

November 1.—$\frac{1}{8}$ gr. was injected. Was seen a few weeks later, when she was well. Two grains had been injected during 6 weeks, the sarsaparilla having been taken 4 weeks.

Case VII.

T. L., a dispensary patient, had a chancre 3½ months ago. On September 30 he suffered from slightly ulcerated sore-throat, and had a few spots at the forehead. Injections of $\frac{1}{12}$ gr. of sublimate were made 4 times a week for 3 consecutive weeks, when the symptoms had completely disappeared. Two more injections of the same strength were made with 4 days' interval between, and then the patient could be discharged cured.

Case VIII.

H., æt. 25, a Scotch Fusileer, was admitted into the Vauxhall-bridge Road Hospital for syphilis on November 12, 1869, where Mr. Bostock, surgeon-major, kindly let him undergo the treatment by injections. The patient had gonorrhœa 18 months ago; also a sore on the penis, which was not considered syphilitic. He had never taken any mercury. He was infected about 4 months ago, and had a chancre near to the frenulum; it has healed with slight induration. Some glands of the neck are swollen, but the patient refers this to scrofulous disease he had in childhood. The face, especially the forehead, is covered with a papulo-maculous eruption of a confluent character, with the skin thickened. On the body and extremities single papules with an acuminated point on a copper-coloured base are to be seen.

13.—The first injection was made of $\frac{1}{12}$ gr., at the right forearm.

14, 15, and 16.—The same dose injected, when the eruption appeared somewhat paler. The injections were made twice a day on the following two days, and at the side of the thorax once the two next following days, and discontinued on November 21 and 22, when the patient had become a little salivated.

23.—He presented a remarkable change after having only one grain injected. The face was much clearer, the skin less thickened; many of the papules were shrunken. Salivation already stopped; patient therefore to resume the injections.

Before I make any comments on the cases, I may be allowed to say a few words on the history of this treatment. A case is mentioned by Hunter where he injected 25 grains of sublimate in 25 weeks; Scarenzio and Hebra used calomel for

injections some time before the treatment by hypodermic injections of the perchloride of mercury was more largely employed by Professor Lewin of Berlin. The latter has published the largest number of cases thus treated by one man—viz., 500—in the 'Charité-Annalen.'* In this and the following year the same treatment had a trial in Vienna in Professor Siegmund's and Hebra's clinique. Dr. Grünfeld published the results of fifty cases belonging to the former.† He spoke of it favourably, though pointing out some disadvantages. Boese of Marburg, Klenck of Leipzig, Meerscheim of Bonn, have spoken highly of it in their dissertations. Höhr is not so much inclined in its favour, and Uhlemann has condemned it as dangerous, causing pain, local inflammations, abscesses, blisters on the skin. Quite recently Monti, the assistant of Widerhofer, subjected children from a month to five years old to this treatment at the Children's Hospital of St. Anne at Vienna. Fourteen cases are published in the 'Leipziger Jahrbuch für Kinderheilkunde' (1869). He used small doses of $\frac{1}{32}$ gr. or $\frac{1}{24}$ gr.; larger ones had bad results. Only in three cases out of the fourteen unfavourable complications were avoided, such as abscesses, diarrhœa, mummification of part of the skin. Still, most of the little patients were cured between the seventh and fourteenth day of the treatment. Monti did not think the relapses rarer than under any other treatment.

In France this mode of treatment is still having a trial at the Hôpital du Midi, and in Professor Hardy's clinique. Liégeois of the latter has already published a first series of 200 cases: 127 were cured, 66 ameliorated. In Belgium, Van Mons, physician to the Pacheco Hospital of Brussels, treated syphilis by hypodermic injections, mostly of calomel. In this country, Hill has reported cases similarly treated; Walker and Parker recommended the injections of sublimate. In America the treatment is becoming known through the English medical press and the 'Boston Medical Journal.'

Remarks.—Of the eight cases, four got cured; one, the soldier, is still under treatment, but progressing very favourably. Of the other three, one who had had the disease for twenty-two years improved in a marked manner, but I think it doubtful if he could be cured of it altogether. He had only $\frac{3}{8}$ gr. injected. One was probably cured, but lost sight of; the

* Vol. xiv. (1868).

† 'Wiener med. Presse,' Nos. 17, 20, 24, 28, 43, 44, 51, 52 of 1868, and January 3, 1869.

treatment failed with the patient at the Marylebone Infirmary owing to abscesses forming. I believe the quantity of mercury injected—viz., $\frac{1}{6}$ gr.—was larger than suited the case, and I would altogether dissuade from injecting more than $\frac{1}{8}$ gr. unless the patient is very robust. The pain caused by the injection will be considerably reduced by using a proper syringe, and having it sharpened occasionally. Where the pain is nevertheless violent in an unaccountable manner the treatment has to be discontinued.

In all the eight cases the injections had a visible effect. The remedy has been found in the urine (by Grünfeld) when only $\frac{1}{16}$ gr. was injected; but without examining the urine it becomes evident that the mercury gets into the system. It may be safely concluded from the stomatitis which often supervenes. Only one of my cases presented anything like symptoms of intoxication, the man Robert X.; but he had only a comparatively small dose—viz., $\frac{1}{6}$ gr.—injected, whereas Lewin used gr. ss. and gr. j. at a time. Such doses easily cause dangerous symptoms—viz., vomiting, diarrhœa, trembling, prostration.

It seems to be possible to deduce a correct conclusion respecting the gravity of the case from the effect the treatment has. Simple spots disappear after two or three not very strong injections, also condylomata and superficial throat disease; squamous eruptions require a greater number of injections; papulous exanthemata resist for a longer time; and the more inveterate the case the more slowly the beneficial influence of the treatment becomes visible.

As for the place where the injections should be made, they are effective wherever made; but if any region is to be preferred, it may be the sides of the thorax. They should be properly distributed, made sufficiently deep, and not too rapidly.

In all the eight cases the effect of the injections was truly remarkable: the disease was almost at once arrested, and the aspect of the patient strikingly better after a very short period. Other observers have had the patients weighed and found their weight increased. The patients assured me after five or six injections that they felt stronger.

Of the intercurrent complications, stomatitis is not rare, and worse in proportion to the quantity of mercury brought into the system. It may to some extent be prevented and controlled by astringent lotions, which should be ordered at an early stage. Nitric acid is very useful. I do not believe that

the heroic doses of $\frac{1}{4}$ gr. and gr. ss. injected by Lewin can be safely used or recommended, as we have no right to expose the patient to a high degree of intoxication; therefore a quick cure in a few days seems to be out of the question. Even iritis may not require the above-named doses. We should be mindful that the dangers of the treatment increase with the increased dose, and therefore resort to smaller ones, say not higher than $\frac{1}{8}$ gr. By injecting a small dose, say of $\frac{1}{12}$ gr., twice a day, we attain our object more safely, as was shown in the case of the soldier. We may begin and end with smaller doses, and interrupt the treatment for a few days as circumstances arise. It depends upon these interruptions whether the treatment is quicker than the other methods. If they were not to be feared it would be decidedly quicker. But it is at any rate possible, with great care, to accelerate the treatment. If it is used in an irregular manner, as in two of my cases, it lasts of course longer. The contemporary use of any other remedy is more likely to be hurtful than useful. In one case I found it advantageous to let the patient continue a mild treatment by the iodide of mercury after the symptoms had disappeared under the use of the injections, in order to prevent a relapse.

For the present I believe relapses are not much rarer than under other modes of treatment. The patients are disposed to neglect to appear for having the injections made, as they dislike the pain. In the case of L. R., a relapse happened after she had been absent for a week. In the case of the workhouse patient all the symptoms recurred after the treatment was discontinued, and all its beneficial effects were lost—to say the least. I found also, by analysing some of Lewin's cases, that a comparatively short time elapsed between the apparent cure and new symptoms. Relapses are, however, always easier to cure than the disease is the first time if no neglect takes place. In the first instance from 15 to 30 injections may be necessary, containing from 1 to 3 grains; in the second, half the number.

In conclusion, I believe it is evident that the treatment by injections cannot become general on account of its drawbacks, but that it is a great advantage to have it introduced into practice. It fills up a gap in the chain of therapeutical agents against syphilis. Cases which have resisted other remedies may be benefited by it; cases where the skin is so covered with eruptions that inunction cannot be applied may be

cured by injections, also those where the digestive organs forbid the continued use of internal remedies. Patients who are pressed for time may resort to it; and some forms of infantile disease where we wish to arrest its progress quickly, and of cachexy, may possibly require it.

XII.—*Attacks of Pain in the Orbit, caused by a Concretion, and cured by its excision.* By J. CROFT. *Read December* 10, 1869.

I SAW Mr. T. J. for the first time as a patient on April 7, 1869. He was 48 years of age, and looking pale and worn from pain. He had been suffering for three weeks from an attack of pain in the right orbit, between the globe of the eye and the inner part of the roof of the orbit. The lids were pushed forward, the upper lid especially so. The ball of the eye was very prominent, and displaced forwards and outwards and downwards. The conjunctiva was slightly œdematous, but there was not any conjunctivitis or sclerotitis. He preferred a subdued light in the room, as strong light excited lachrymation; but there was not any change in the eye itself, and vision was not disordered. The movements of the globe were not arrested in any direction, though motion caused a little pain. The pain from which he had been suffering was not lancinating or throbbing, but wearing, constant, and neuralgic in character.

On passing the finger over the upper lid he winced slightly when the pressure reached a little lump under the skin, about midway between the inner angular process of the frontal bone and the ball of the eye; the pain was increased by firmer pressure. This clearly, then, was the locality of the pain. I next satisfied myself, as far as manipulation could serve me, that the little projection or lump was not part of a growth from the periosteum, and set to work to make out its nature.

As I was listening to the history of the various attacks of pain which the patient had suffered, I caught sight of a

short, vertical, linear scar over the nasal process of the frontal bone on the right side. This led to his narrating the following account of himself, which I give in nearly his own words, omitting the names of the various distinguished surgeons and oculists to whom he referred:—

'On August 21, 1835, when 15 years of age, I was struck on the forehead by the end of a cricket-bat. From that time until the beginning of 1841 I know my eye was not in its place, being depressed and protruded; but I cannot have had much pain or inconvenience, or I think I should remember it.

'From that date (1841) until 1844 I remember feeling a good deal of pain and running from the eye whenever I went into the air, or had more light in the room than usual; and it had become so troublesome then that I consulted three eminent surgeons at different times.

'From them I derived no benefit; and the next year (1845) I again consulted one of the three surgeons and an oculist. The latter recommended me to wear neutral-tint glasses, and to try the effect of iodine externally and internally. This I did, but it was of no benefit to me. The glasses certainly relieved the pain a good deal.

'From 1845 I went on without any severe attack of pain until October 1859 (a period of 14 years); but I was always conscious of an eye (if you understand what I mean by that). In this last month (Oct. 1859) I had a sharp attack, more of an inflammatory character than the later ones, and I consulted one of the best oculists of the day. A leech was tried first, and then ice was constantly applied, but I don't think either remedy succeeded. The attack passed off, and I was tolerably free until November 1860, when I had a very severe attack, and an oculist came to see me. I consulted him again in the following February and May of 1861, but without much, if any, benefit.

'I had then rest until April 1863, when I had a very severe attack, and not another until this, which began three weeks ago.'

In some of the attacks blood appeared suddenly beneath the conjunctiva, and he thought the effusions were followed by relief from the pain, but Dr. N. Evans, his medical attendant, had not observed any change ensue at such times.

He was quite certain that the lump was to be felt easily in 1843. He added, 'I think there is no doubt that my eye was much more out of its place previous to the first severe

attack in 1859 than it has been since, excepting during the attacks themselves. And, with regard to the exciting causes of the attacks of pain and swelling, he stated that 'before the attack in 1859 I had had a good deal of anxiety (it was the year of the money panic); and in February 1860 I had been in the railway accident at Tottenham, and, although not injured externally, was very much shaken, and was more or less laid up nearly all the year.' Prior to the present attack he had been subjected to many anxieties.

From this account, and the local symptoms, I formed the opinion that the little lump was directly or indirectly connected with the attacks of pain, and that it would be advisable at a future time to make an exploratory incision over the projection to ascertain its nature, and, if possible, to remove it.

I thought that probably the little mass (whatever it was) involved or impinged upon one or other of the trochlear nerves, and that it was due either to a neuroma, or, more probably, to a foreign body driven in at the time of the blow from the cricket-bat.

For the present I recommended that the plan of treatment adopted by Dr. Nicholl Evans should be continued—viz., quinine internally, but in the larger doses of 3 or more grains three times or oftener daily, and subcutaneous injection of morphia; and I advised that when the patient had somewhat recovered from this attack he should submit to an exploratory operation.

Under this treatment he soon became better in health, though he was never free from pain. Two months later he had much improved in health and spirits, but he had not lost the pain, though the latter was much subdued. The swelling had subsided from the eyelids, but the globe was still much displaced forwards, outwards, and downwards. The little projection was yet to be felt in its old place, and perhaps better defined than before.

I again advised him to submit to an exploratory operation. Before deciding, he determined to see Mr. Paget. Sir W. Jenner also examined him, with Mr. Paget; and, those gentlemen sanctioning the proceeding which I had proposed, the operation was at last resorted to.

It was performed a few days after, on June 28. The dissection proved a very simple one: about an inch from the surface an ill-defined matrix was reached, from which I enucleated a small hard body about the size of a cherry-stone.

The matrix consisted of a soft material of a buffy colour, like partly decolorised fibrine. There did not seem much of it, perhaps the equivalent in bulk of a hazel-nut. I did not excise any portion with the hard body.

This satisfactory operation was followed by most satisfactory results. The wound healed rapidly, and the patient was cured of his pain. I saw him a few days ago—5 months after the operation. He had not had any relapse of the pain. The eyeball was almost on the same level with that of the opposite side, and there was only a trifling induration to be felt in the cicatrix.

Now with regard to the hard body. As I stated, it is about the size of a cherry-stone, and slightly flattened. The circumference is irregular at one part, where it presents a projection which is constricted at its origin, from the body of the concretion.

A section showed it to be laminated in structure, and to consist of more or less perfect lamellæ of light-buff colour,

alternating with the more abundant white material of which the centre and bulk of the concretion are composed.

Under the microscope it exhibited a fine granular structure, which, on the addition of hydrochloric acid, dissolved with brisk effervescence, leaving an extremely delicate film of organic matter.

I have not had the concretion analysed, as it is so small that there is not enough to spare.

Lastly comes the question, What condition had given rise to the formation of this concretion? The nature of the matrix in which it was found, the lamination of the mass itself, and the colour of the lamellæ seem certainly to point to its origin from a coagulum of blood. This leads one to conjecture whether the clot was the result of the concussion that must have accompanied the blow which the patient received on his forehead when a boy of 15; or whether the clot formed, as do those clots in which phleboliths originate; or, again, whether the clot was in its nature aneurysmal. I

dismiss the last as the least probable. I doubt its being a vein-stone, because there were no signs of any venous obstruction, and the matrix about the concretion was without a limiting membrane of any sort, that I could discover. If it be a formation of this nature, it illustrates Rokitansky's description: 'When the lining membrane and circular fibrous coats of the capsule are gradually destroyed, the phlebolite finally lies in a capsule of cellular tissue.' Not that I recognised even a capsule of cellular tissue.

To me it seems most probable that the first-mentioned conjecture is the correct one—that a small quantity of blood was effused at the time of the blow on the forehead 30 years ago, and that the coagulum then formed did not completely undergo resolution, but in course of time calcified into the little mass which I enucleated.

But, after all, this is conjecture. The cause of the extravasation (subconjunctival) which occurred during some of the attacks is another puzzling subject.

In conclusion, I think I need not make any excuse for bringing this case before the society, for both clinically and pathologically it was and is very interesting and obscure.

I cannot find any record of a case of similar nature.

[July, 1870.—Mr. Croft states that the patient remains cured.—Ed.]

XIII.—*Cases in which Torsion has been employed, and Remarks on the Comparative Merits of that Process and Acupressure.* By J. Cooper Forster. *Read December* 10, 1869.

About a year and a half ago I was selected by the council of this society to act as one of a committee to investigate the relative advantages of acupressure and torsion for the arrest of hæmorrhage. Owing to the untimely death of one of its members, the late much-respected Mr. Alexander Bruce, the committee failed to issue a report. But I cannot quite absolve myself from taking some notice of what was clearly the wish of the society, and offering at least my individual opinion upon the subject.

I need not dilate on the reason I had for first making use of acupressure. I suppose that the idea of being able to have a wound free from all extraneous bodies in 2 or 3 days after an operation would be a sufficiently strong inducement to any surgeon to try the plan; at any rate, it was so in my case. It has been used pretty freely by a great many surgeons, both in this metropolis and in the country, but, with the exception of Aberdeen, it scarcely seems to have found itself any hospital habitation as far as I know; at all events, I can answer for London. And yet it has its advantages, as I think I have in two numbers of the 'Guy's Hospital Reports' clearly shown. As a means of arresting hæmorrhage from an amputated leg, it is, unless in very practised hands, both tedious and difficult; moreover, as I have also shown in the work just alluded to, it is by no means free from danger—that is to say, bleeding may occur on the withdrawal of the pin. I believe I have lost two cases by this plan of arresting bleeding from a stump; it is true, both patients were in a most depressed and enfeebled condition, and I think it not improbable that hæmorrhage would have occurred at the separation of a ligature, had one been applied. That, however, is scarcely the point; if I am compelled to admit that bleeding has occurred twice in my hands from the main artery of a limb where such main artery has been acupressed for (in one case) 72 hours, I think I have stated enough to show that this plan is an uncertain one, and not calculated for universal application. Here let me state again that these untoward results occurred after I had acupressed over 30 cases, and that therefore I may fairly be considered to have had a little practice in the method of using the pins and wire.

I cannot in justice, however, do otherwise than state that acupressure is still used by the Aberdeen surgeons, and I believe Drs. Keith and Pirrie still extol it as the most certain, and therefore the best, method of closing bleeding vessels. To small arteries, for which torsion does not answer quickly, I have employed it; in wounds of the palmar or plantar arteries, when it is next to impossible to cut down and otherwise arrest bleeding, acupressure, if applied to the two main arteries supplying the hand or foot, as the case may be, is a most valuable means of stopping bleeding. The ingenuity of the surgeon may find other means for its use, and I have no doubt it will always rank among the various effectual means of stopping bleeding. The withdrawal of the pin which is

used in 24 or 48 hours gives it a great advantage over the ligature, but still a precedence for acupressure over all other means of arresting bleeding from vessels is not, so far as I have seen, merited.

If that is due to any plan, it is to torsion. Torsion, as a method of securing vessels, is only revived in the present day. It is a very tempting plan to the surgeon, and, if a safe one, leaves nothing more to be desired as a means of arresting bleeding, there being no extraneous bodies left in the wound. As a proof of its efficiency, I will mention the following cases which have occurred under my own care, and in which I have twisted the vessels myself, since last January, previous to which time I had published several in the last number of 'Guy's Hospital Reports,' when the plan had been adopted for medium-sized vessels, and two cases in which two of my colleagues had applied it to the femoral artery:—

CASE I.

J. W., æt. 52. Left foot crushed by railway truck. Chopart's amputation on January 26, 1869.

Torsion to the vessels. Death from diseased viscera.

CASE II.

F. M. G., æt. 12. Disease of knee-joint and lower part of femur.

Amputation of thigh on April 14, 1869.

Torsion to vessels. Recovery.

CASE III.

J. W., æt. 18. Disease of knee-joint and femur, with displacement of tibia; atrophy of leg and thigh, which was 2 inches shorter than the fellow.

Amputation of thigh, May 10, 1869.

Torsion of vessels. Recovery.

CASE IV.

E. K., æt. 20. Legs and lower part of thighs crushed by railway accident.

Double amputation of thighs, July 13, 1869.

Torsion to all the vessels. Death in 36 hours from exhaustion.

Case V.

C. C., æt. 21. Disease of knee-joint and of femur; previous removal of large portion of bone.

Amputation of thigh, July 24, 1869.

Torsion to the larger vessels, acupressure to two smaller ones. Recovery.

Case VI.

E. S., æt. 17. Disease of ankle-joint.

Amputation of leg, August 26, 1869.

Torsion to all the vessels. Recovery.

Case VII.

J. J., æt. 36. Diseased knee-joint of long standing; patient had been an inmate of a workhouse for some months.

Amputation of thigh, September 1, 1869.

Torsion to all vessels. Death from erysipelas and gangrene.

Case VIII.

F. W., æt. 47. Compound fracture of tibia and dislocation of fibula; railway accident.

Amputation of thigh, November 30, 1869.

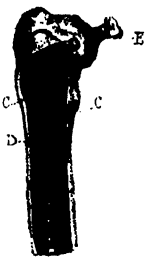
Torsion to the vessels. The femoral artery was minutely studded with atheroma; the man is very intemperate.

In addition to these operations, I have once excised the elbow-joint, 3 times the knee, and 4 times the hip, besides other operations during the last 5 months, amounting, public and private together, to about 40, in all of which of course more or less hæmorrhage has occurred, and in no one instance has any other means than torsion been employed. I think, therefore, that I have fairly given the plan a trial, and may speak with some amount of confidence as to the results. When I read in the number of the 'British Medical Journal' for August 7, 1869, such words as these, contained in the able address by the late Mr. Nunneley to the association, I confess myself to be somewhat startled: he says, 'But for myself I must say that I could not twist a large artery and lie comfortably in bed the next night, lest while I slept the elastic

Fig. 1.

A = Twisted external coat.
B = End of Artery seized by forceps.
C = Reduplicated middle and internal coats.
D = Clot.

Fig. 2.



C and D as above.
C′ = Middle coat split into two lamellæ, the outer one going with the external coat, the inner becoming reduplicated. This occurs opposite the large branch E.

artery should untwist itself, and my patient bleed until he slept never to wake again.' Now Mr. Nunneley admitted that torsion might be used for small vessels, in such cases, I suppose, as I have included in mine not particularised—viz., removal of breasts, excision of joints, tumours of all sizes and sorts, hernia, &c.; but I can assure those who think with him, if they will carefully read the report of the manner in which torsion closes a vessel, they will find that the idea of an artery untwisting, if properly twisted, is untenable: such untwisting is an impossibility.

The mere statement of facts such as I have related, and my opinion drawn from those facts and observations, perhaps would bring but little conviction to the minds of many of my hearers, did I not at the same time show them the means whereby bleeding is arrested when torsion is applied. With a view to this, when the poor fellow (Case No. 4) with double amputation of the thighs died, I got Mr. Howse to harden the femoral arteries of both thighs, and to make a section of the vessels. I now present to you the drawings taken from the preparation, to show the manner in which the most wonderful and perfect closure of the vessel takes place. I perhaps cannot do better than read at the same time the report of Mr. Howse:—

'*Left Femoral.*—This artery is completely obstructed; a clot for about 2 inches, and a tail of reddish fibrine, not occupying the whole calibre of the artery, extends above this point for a further distance of 2 inches. At the lower end of the artery the middle has separated from the external coat, and retracted inwards for a distance of fully one-third of an inch, so that the sides come in contact and rest one against the other.

'The clot in the artery rests directly against the retracted middle coat. Beyond the retraction there is a space containing clot supported by the twisted external coat. This arrangement keeps the retracted middle coat in place, so that it cannot by any possibility yield. Below the twist we come to the end of the artery, which had been seized in the forceps. This was completely adherent to the surrounding tissues, and showed no signs of death. The whole points out the importance of not twisting off the lower end of the artery, whereby much firmness would have been lost.

'*Right Femoral.*—There is only about 1 inch of clot in this artery; this, however, completely obstructs it. The lower end presents the same conditions as the left, with these

slight differences: 1. That just above the point of twisting the artery had given off a considerable branch. This branch, however, is completely obstructed by fibrine, so that it has not at all interfered in the favourable results of the torsion. 2. Moreover, in the present case the middle coat has not exactly separated away from the external, but has split through itself, leaving a very thin lamella of itself upon the external coat.'

Not in one of the cases I have related, nor in any I have had under my care, has there been such a thing as secondary hæmorrhage; indeed, it is the remark of the dressers and house surgeons of Guy's Hospital now, that they have been less frequently called to cases of bleeding after operations since torsion has been practised than before. I might have taken cases from my colleagues, Messrs. Cock, Poland, and Durham, all of whom have practised this plan with success, and only in one instance have I heard of hæmorrhage after an amputation; but I have thought it better to speak only of those patients who have been under my own charge, and on whom I have used the plan.

I arrive at the conclusion that the greater security of torsion is to be found in the condition of the coats of the vessel owing to which the bleeding is arrested. In torsion, as I have shown, this occurs by the reduplication of the internal and middle coats of the artery, affording a mechanical impediment to hæmorrhage, which impediment is increased day by day. But in acupressure, as I have shown,* a clot which forms immediately above the pin is the only safeguard against bleeding, and as the pin has to be removed within a few days, it must always remain a matter of uncertainty whether that clot is firmly enough adherent to afford the necessary security against hæmorrhage.

When a vessel is twisted, it is made secure at the time that torsion is practised; i.e., bleeding is with certainty arrested; there is no chance of its taking place at any other time; whereas in acupressure, as in the ligature, the surgeon's anxiety for the security of the vessel is in the one case when the pin is being removed, and in the latter when the ligature is separating. I may state that for nearly 3 years I have never applied a ligature to any vessel for the restraining of hæmorrhage.

* 'Guy's Hospital Reports,' vol. xiv.

XIV.—*Medullary Cancer of left half of the Soft Palate.*

By John Langton. *Read January* 14, 1870.

GEORGE G., aged 59, but looking older, was admitted under my care into St. Bartholomew's Hospital for a tumour involving the soft palate. He had been under the care of Dr. Church as an out-patient, with large tubercular cavities in the apices of both lungs. His thoracic symptoms had amended under treatment, but his general condition had not correspondingly improved. On November 3 I was requested by Dr. Church to examine the patient's throat for a tumour, which he stated had existed for three months, but of which he had not complained until the present visit.

The patient was much emaciated, and his expression was indicative of exhausting disease. Respiration and deglutition were much embarrassed, the latter to such an extent that for the last month he had been unable to swallow any solid food. In the left half of his soft palate there was a tumour about the size of a large walnut, pushing the uvula over to the right side, and almost occluding the isthmus faucium. It pushed down the interspace between the pillars of the palate, so that the tongue had to be depressed to trace out its lowest border. The growth extended into the post-palatal cavity, but the finger could with ease be passed up towards the posterior nares, between the tumour and the hind wall of the pharynx. The tumour was soft and almost fluctuating to the touch. The mucous membrane over the growth was slightly congested, and a few large veins were seen ramifying on its surface. There was no glandular enlargement in the cervical region.

The symptoms being urgent, it was determined to remove the tumour, if possible, by exposing it freely on its anterior aspect. Mr. Smith's gag was inserted into the mouth, and a good view of the whole growth was thus obtained. An oblique incision was made along the long axis of the tumour, and the mucous membrane reflected from it. The hæmorrhage was profuse, but, with this exception, no impediment was experienced in the removal of the mass. It was easily enucleated, except towards the horizontal plate of the hard palate, where its attachment was more firm. The edges of the wound were brought together by silver sutures, and the

faucial aperture was thus nearly reduced to its normal width.

The tumour was soft and lobulated, and on section presented the usual characters of medullary cancer, which were corroborated on microscopic examination.

The patient's condition improved for a time after the extirpation of the cancerous growth. Breathing could now take place both through the nose and mouth, and the patient was enabled also to take solid food. Up to his discharge from the hospital he continued to improve in appearance and in strength, and he went into the country about the end of November.

He was readmitted on December 14, with recurrence of the disease in the palate, and with the cervical glands on the left side infiltrated with cancerous deposit. From the date of readmission the medullary tumour in the palate rapidly increased, and he died slowly from exhaustion on January 3, 1870.

In the post-mortem examination the rigor mortis was fair, and the body much emaciated.

The cancerous growth involved mainly the left half of the soft palate, and extended downwards for some distance in the palato-pharyngeal fold. The right half was to some extent implicated, but no definite tumour could be distinguished. The mucous membrane on its oral aspect was not eroded, but on its nasal surface the mass had ulcerated with soft fungous granulations, characteristic of medullary cancer. The growth was about the size of a small Tangerine orange, and no connection with the palate bone could be detected, even after careful examination.

The lymphatic glands extending along the neck as far as the mediastinum were enlarged from cancerous infiltration.

The heart was large and flabby. Both lungs were bound down by firm adhesions, and the pleural lining was much thickened, mainly towards the apex of the chest. The lung surfaces were studded with round cancerous deposits, some of them being as large as a threepenny-piece. The apices of both lungs were occupied by large irregular cavities with softened walls.

The points of interest in this case are manifold, both from the rarity of the disease and the coexisting progress of tubercle and cancer. But it is to the difficulties which were expected to arise during the removal of the tumour that I wish to draw attention.

The propriety of operating was, I believe, questioned by none of my colleagues, although to all it was doubtful whether an operation could so satisfactorily remove the disease as to prove of any permanent benefit to the patient.

The method of procedure advocated varied, some recommending that prior to the excision of the growth tracheotomy should be performed, so as to reduce as far as possible the risk of suffocation from blood passing down into the trachea. It appeared, however, to me scarcely advisable to increase the patient's danger by opening his trachea, in addition to the formidable operation of removing the tumour from the palate. If suffocation were imminent, and the necessity for tracheotomy should arise, I apprehended that the patient's trachea might be opened before any real danger existed. The risk of such an amount of blood passing down into the trachea as to cause apnœa is very slight, as evidenced in the operations for removal of the superior maxilla, and for the cure of cleft palate. Some instances of apnœa have arisen from entrance of blood into the lungs, but these instances appear to me to be so exceptional as with ordinary care to be reckoned only among the possibilities of danger.

XV.—*Cases of Carbuncular Inflammation of the Face.*

By T. Smith. *Read January* 14, 1870.

Case I.

A GENTLEMAN, æt. 36, of nervous temperament and active business habits, in fairly good health, went to Dr. Andrews, of Camden Road, on November 18, 1869, with a small pustule on the upper lip, about the size of a pea; there was swelling of the right cheek, which was somewhat flushed and œdematous; there were no signs of constitutional disturbance. A poultice was ordered, and he was advised to remain at home, to take a fair allowance of wine with his food, and quinine and iron.

4th Day.—On the 21st the pustule had dried up and the

scab had desquamated; the swelling of the face remained much the same. There was no constitutional disturbance.

5th day.—The swelling of the lip had subsided; the face was a little more swollen; in the substance of the cheek, about its centre, was a small, hard swelling, neither red nor livid. There were now signs of constitutional disturbance; the pulse was rapid; tongue foul. He complained of some slight pain in the left side, pain and stiffness in the loins, and inability to use his legs. The urine contained abundant lithates and was not albuminous.

6th day.—He had a rigor, and complained of severe pain in left side; dyspnœa; pulse 120; a pleuritic friction sound was plainly audible on the left side. The swelling of the face had extended and had become intensely hard; there was no pain or tenderness on pressure, and the colour was neither red nor livid, but rather pallid. A poultice had been kept applied to the face, and he had been well fed.

7th day.—He was in every respect worse, except that the pain in the side had disappeared under treatment. Pulse 130; respiration 65; tongue foul; skin sweating. He was restless and excited, but not delirious; he took food well; complained of pain in the legs; his physical strength was not deficient. The swelling of the face had extended, but in other respects had not altered. The right eye was closed; the skin of the forehead was swollen as far up as the roots of the hair, and as far back as the meatus auditorius. There was a little œdema extending towards the neck; the left side of the face was unaffected; the cheek was intensely hard, but neither painful, hot, nor tender. He complained of pain in the legs; there was no sign of any joint effusion.

8th day.—There was no change in his symptoms; during the day the skin of the affected side had become livid; the patient died on the evening of this day.

The treatment in this case consisted in supporting the strength throughout with food and stimulants. Quinine and iron were first administered, and subsequently bark and ammonia, sulphite of soda being added to the latter on the 6th day. A poultice was kept applied to the face until the 6th day, when it was painted over thickly with strong collodion. For one day, when the pain in the side was acute, the stimulants and tonics were interrupted, and local and general measures were adopted with advantage for the relief of the pleurisy.

Case II.

For the particulars of the following case I am indebted to Mr. Paget, who received them from Dr. Caumack, of Boston, with whom he saw the case in consultation.

On October 15, 1868, a gentleman, about 40 years of age, found a pimple in the centre of the lower lip, at the margin of the mucous membrane; it felt sore and irritable, but he thought it of no consequence.

Next day the pimple was surrounded by a small hard swelling; it looked like a crack on the summit of a boil. The patient complained of a pricking sensation in the part. His general health was not good; he had been living more freely than was usual with him; the stomach was out of order and the bowels confined; pulse 78; breathing natural; he had no headache, but was restless. He was ordered an aperient draught and pill.

On the 3rd day the patient was in much the same condition. The swelling had increased to about the size of a nut; it was hard, and a drop or two of pus appeared at the summit; it had the appearance of a small carbuncle; he had passed a restless night, and the bowels were still confined; he felt uneasy and irritable. An aperient was again ordered. Towards evening the bowels acted, and the patient felt better. Pulse 78; he had taken a fair amount of nourishment, with three glasses of wine, in the day.

4th day.—He had passed a very restless night, being unable to remain in bed; pulse 84, regular and soft; the constitutional symptoms did not seem more severe than might be expected in a case of carbuncle with derangement of the digestive organs. The hard swelling in the lip had not increased, but there was a soft swelling all round it, giving an unnatural fulness to the lip. He was ordered a mixture containing soda and calumba, and a poultice was applied to the lip; he took four glasses of wine, with nutritious diet.

On the 5th day the patient felt more comfortable; pulse 86; he had passed a restless night; the swelling on the face was softer and somewhat smaller. On the scab being removed two or three drops of purulent matter escaped.

6th day.—In all respects the patient seemed better; he had had a better night; he was more cheerful; pulse 80. The swelling seemed to have a perceptible fluctuation; as the patient objected to its being incised, the poultice was

continued. In the evening of the same day he expressed himself as going on all right and as feeling very comfortable, but his pulse had risen to 112 and was weak and intermittent; the breathing was very rapid, and there was obviously great pulmonary congestion. The expression of face was anxious, the swelling was rapidly extending from the chin and towards the ears, and the skin had an erysipelatous blush upon it. A solution of nitrate of silver was applied freely over the skin, and wine and quinine were given through the night every three hours. During the night he slept at intervals; he sweated very freely. He expressed himself as feeling so much more comfortable that he was sure he was getting better.

On the 7th day of his illness Mr. Paget saw him. The lips and face were enormously swollen, and the swelling was extending down the neck; the parts were of a livid colour; there were a few pustules scattered about the red edge of the lip. The pulse was very frequent and feeble; the respiration hurried. The intellect was undisturbed; the patient had no apprehension of danger, nor any sensation as of very serious illness.

He died on the following day.

Case III.

For the particulars of the following case I am indebted to Dr. Hamilton, of Canonbury:—

W. H., æt. 20, a male of strumous diathesis and nervous temperament, was seen first on November 5, 1869, with symptoms of influenza, feverishness, and coryza; he had also a small boil on the back of the neck about the size of a sixpence. He was ordered to remain in one room, to take some Dover's powder at bedtime; starch and glycerine were applied to the boil. He passed a restless night, being a little delirious. Next morning his pulse was rapid; boil less circumscribed and less painful. He was ordered to remain in bed and to take some diaphoretic mixture, beef-tea, and champagne.

On the 3rd day he was seen at 3 A.M. and found to be wandering. Pulse over 100 and feeble; perspiring freely. The boil was less red and the hardness more diffused. At 11 A.M. the mind was clearer, but the pulse had risen to 120 and was very feeble. He was ordered beef-tea, champagne,

and brandy at regular intervals. Poppy fomentations were applied to the neck.

On the 4th day he was much the same, with a very feeble pulse, and perspiring profusely. He was ordered two grains of quinine with tincture of perchloride of iron every 3 hours, and to continue his nourishment. There was slight dulness at the bases of both lungs posteriorly, with crepitation.

On the 5th day the condition of the patient was much the same. He was weaker and wandering constantly.

On the evening of the 6th day he died, having been seen during the day by Mr. Paget. When seen by Mr. Paget he had a good deal of œdema about the carbuncle, which was beginning to suppurate. There was much surrounding, ill-defined, inflammatory œdema about the neck and extending round towards the front.

Post-mortem Examination. — There was great hypostatic congestion; on laying open the back of the neck there was found to be about ½ oz. of pus where the original boil had been, and for about a diameter of 5 inches around, the tissues were infiltrated with pus. Fresh lymph was found on both pleuræ; about 4 oz. of serum in their cavities. The lungs were injected, and in their tissue were several spots of pulmonary apoplexy, but no abscesses. The brain was not examined. The abdominal organs were healthy.

These cases have been related as examples of an issue of carbuncular inflammation that is happily rare, though I think not so rare, when the disease attacks the face, but that it deserves more notice than it has hitherto received.

Facial carbuncle, it has been said,* seems to bear to common carbuncle much the same kind of relationship as scarlatina maligna does to scarlatina simplex. It differs, however, in its general progress and constitutional effect from the same disease occurring elsewhere, so much as to have justified some in describing it under a different name. Thus Dumereuil treats of it under the term 'multiple furuncle of the face.' Bourgeois calls it 'agminated furuncle of the face,' while Dr. Budd claims some cases of the disease, published by Mr. Ludlow, as examples of malignant pustule. In the year 1852 the late Mr. Ludlow published a paper † on carbuncular inflammation of the lips and other parts of the face, and quoted six cases of the disease which differ in no

* Holmes's 'System of Surgery,' vol. iv. p. 786.

† 'Medical Times and Gazette.'

important feature from those read this evening. These cases occurred in the years 1851–2, when this form of carbuncle may almost be said to have been epidemic.

The following were the chief characteristics of Mr. Ludlow's cases:—All but one began with one or more pustules on the lip; the remaining case commenced as a boil. Diffuse swelling of the face followed, accompanied by severe pain and constitutional disturbance, ending in death in three instances; and in all these there were symptoms of pulmonary or pleuritic complications, indicating the occurrence of pyæmia. Two post-mortem examinations were made: in one purulent deposits were found in the lungs and in the parenchyma of the kidneys; in the other in the lungs and cavity of the pleura.

The cases that recovered did not differ considerably in their local symptoms from those that ended fatally, though of course there were no symptoms of general blood-poisoning.

Having seen the patients whose cases were detailed by Mr. Ludlow, and since that time three or four fatal and many more favourable issues from carbuncular disease on the face, I have to confess that I am quite unable, from the appearance of the disease in its onset, to prognosticate the result. Up to a certain point the local symptoms of both benign and malignant cases seem to be identical: early suppuration, moderate pain, and a distinctly limited area of inflammatory œdema are favourable signs, while the opposite conditions portend an unfavourable issue. Generally, however, it is not until the occurrence of rapid breathing, a pain in the side, or a rigor, that one is warned of the almost certainly fatal issue of any particular case.

Dr. Andrews, under whose care the case first related this evening occurred, informs me that within the last six weeks he has had under his care six cases of benign inflammatory pustule of the face, which at their onset differed in no appreciable feature from the fatal case.

The disease usually begins in a small itchy pustule, boil, or vesicle upon one of the lips. This in a day or two after its rupture is followed by a firm œdematous swelling of the lips, nose, and cheek, producing a hideous deformity. A few pustules or vesicles generally show themselves about the red edge of the lip, and the swelling extends, the surrounding induration being less defined than in carbuncle occurring elsewhere. The pain is generally most intense, and the

colour of the surface usually passes through the shades of bright red, dusky red, and dark plum colour, until it is almost black, particularly about the red edge of the lip; suppuration is slow to occur, but if the patient live long enough, pus will form and be discharged, together with disintegrated cellular tissue.

The constitutional symptoms are at first those of ordinary pyæmia, the first indication of blood-poisoning being generally rapid breathing, a rigor, a stitch in the side, occurring either singly or in quick succession.

The disease that most closely resembles carbuncular inflammation of the face is doubtless malignant pustule. The symptoms of this affection are the following, as stated by Bourgeois :—The application of a virus to some part is followed in from 1 to 3 days by a small red spot, accompanied by smart itching. After 12 or 15 hours a small vesicle appears, about the size of a pin's head, containing a little brownish-yellow serum; on the rupture of this the itching generally ceases, and the skin beneath is seen to be of a yellowish-brown or black colour. This discoloured spot indicates the death of a thin layer of the true skin, which soon extends through its whole thickness. In less than 24 hours a fresh crop of vesicles appears situated in an irregular circle around the eschar in the skin, which latter is depressed, dry, of a brownish-yellow colour, and but little painful on pressure. After 24 or 48 hours the parts beneath swell, harden, and form a solid lump, which can be raised from the surrounding tissues; sometimes this induration is absent. The mortification now extends up to and beneath the vesicles, and as these are destroyed fresh ones form in a widening area. The skin around, which was at first pale, reddens, and then becomes livid-red. Œdema comes on in the surrounding parts, which is ill-defined in its limits. The swelling is scarcely painful, and the temperature but slightly raised. The central slough enlarges, but not to any great extent or depth; it is now extremely hard, while the surrounding swelling may become enormous. The signs that distinguish this disease from boil and carbuncle are chiefly an absence of severe pain or increased temperature, the dryness of the slough, the entire absence of pus in all stages of the malady, and the fact that the destruction of the tissues proceeds from the skin towards the deeper parts, and not, as in carbuncle, by a central sloughing of the subcutaneous parts, followed by death of the skin. Yet, notwithstanding these distinctive features,

the same author confesses that, in rare instances, it is impossible to distinguish with absolute certainty between these two diseases.

The question naturally arises, Were the cases I have detailed examples of malignant pustule? I believe that they were not, and for the following reasons:—There was an absence of any suspicion of the application of a local virus, and in Dr. Hamilton's case it was wellnigh impossible, as the disease occurred beneath the clothes between the shoulders. In all there was a formation of pus, and of this symptom M. Bourgeois remarks that malignant pustule is a singularly inappropriate name for the disease to which it is applied, since it conveys the idea of some purulent formation; whereas the secretion of pus is so opposed to the essence of the disease, that the recognition of the smallest quantity in a doubtful case would show the disease at once to be of some other nature than malignant pustule. Elsewhere he says, if pus appear spontaneously or on pressure, one can certainly say that the disease is not of the nature of charbon. He also speaks of the fatal tendency of carbuncular inflammation of the lips, and mentions the signs which distinguish it from malignant pustule.

Thus the cases I have related differed in their local development from malignant pustule, or any known disease arising from the application of a specific poison. Up to the period of constitutional poisoning the local symptoms did not differ materially from well-known diseases, such as boil, carbuncle, inflammatory pustule. The constitutional symptoms in the fatal cases were similar to those that arise in death by pyæmia from boil and carbuncle occurring elsewhere.

I believe we are warranted in concluding that facial boil and carbuncle is not a specific disease, and that it does not owe its gravity to any external local infection.

As a possible explanation of the mortality of facial boils and carbuncles, I would suggest that the danger to life may be due to the textural peculiarities of the soft parts involved, and to the exceptionally free and direct communication of the venous system of the face with other large venous trunks.

It would be difficult to say what may be the textural peculiarities of the facial tissues that predispose them to cutaneous erysipelas and inflammatory œdema. Yet it would be acknowledged that the face is particularly predisposed to this disease in its idiopathic form; also that

operations on the face are more liable to be followed by erysipelas than operations elsewhere; and that inflammatory and traumatic œdema occur from slighter causes and are developed more rapidly here than elsewhere.

With regard to the venous system of the face, the facial vein differs from other external veins in being less flaccid in its walls and more constantly patent in its canal; also by its communication at its lower dependent end with the jugular, by its upper end with sinuses of the brain, thus affording unusual facilities for the escape of morbid material from its canal into the general circulation. Again, perhaps it is worth calling attention to the immediate and powerful effect of the inspiratory movements on the venous circulation of the face.

I do not say that any, or even all, of these peculiarities are sufficient to account for the liability to poisonous infection observed in facial boil and carbuncle.

Yet the cases recorded of sudden death from the injection of nævi on the face with liquor ammoniæ and perchloride of iron, and the fact that similar calamities have not occurred from the injection of nævi elsewhere with the same fluids, make it almost certain that there exist in the tissues of the face unusual facilities for the passage of fluids from the subcutaneous tissue into the general circulation.

Treatment.—It is too much to be feared that in the present state of general therapeutical knowledge, or perhaps one had better say ignorance, we possess no means, either medicinal or operative, that is capable of averting the deadly effects of blood-poisoning of the kind and degree that is liable to occur in this malady, when once that poisoning has occurred. Our efforts can therefore only be directed to prevent the occurrence of this catastrophe. With this object in view, one of two methods presents itself—namely, either the complete destruction in a very early stage of the disease and tissues involved by some powerful caustic, or by the attempt to neutralise or destroy the septic properties of the disease by the administration of internal remedies.

It is almost certain, from the effects of similar treatment on malignant pustule, that the complete destruction by caustic potash, in an early stage, of the pimple, boil, or pustule that ushers in this disease, would at once obviate all risks of septicæmia. It is, however, no less certain that by the adoption of this plan a large number of patients would be needlessly subjected to a very painful and permanently

disfiguring treatment. Indeed, such practice could not and ought not to be pursued. With regard to the administration of internal remedies, I know only of one that has been found efficacious, and that is quinine, given in such doses as to produce cinchonism, and for this information I am indebted to Mr. Paget, whose personal experience has given him good results from its use.

I would venture to propose that in all cases of facial boil or carbuncle, in addition to the general measures that ordinary prudence would suggest, sulphite of soda or magnesia should be systematically administered from the very first.

Though I have no experience of the effects of this drug as a preventive of the blood-poisoning that may occur from facial carbuncle, yet I believe that I have seen the happiest results from its administration in the early stages of the pyæmia that so often occurs with acute necrosis, and more rarely after operations in children.

XVI.—*Three Cases of Tapping the Chest in Pleurisy, with Remarks.* By Berkeley Hill. *Read January* 28, 1870

Case I.

MARCH 14, 1867.—I was asked by Dr. Reynolds to examine one of his patients in University College Hospital, who 5 years before had had acute pleurisy in Germany and had been tapped to 150 oz. of clear fluid. Twelve months later he was twice tapped again in Algiers and the cavity injected with iodine. When I first saw him dulness and loss of vocal fremitus existed over the left side as high as the 4th rib. The heart's apex was outside the right nipple. He was feeble but had no dulness at the apices or other signs of advanced tubercle. I drew off 100 oz. of opaque matter with very little relief. A flexible catheter and tube left within the opening was the nearest approach to continuous drainage the patient allowed me to try. In three-quarters of an hour the

patient withdrew the instrument, and during the next 2 days 45 oz. were daily evacuated by the catheter. During the next 10 days the physical signs became good, the dulness departed, and the vocal fremitus could be felt as low as the puncture in the 8th interspace. Respiratory movement increased; the amount of fluid withdrawn did not exceed a few drachms; a long probe passed through the aperture moved freely in several directions. A catheter was tied in for 48 hours, but no matter escaped, and evacuations were then stopped. A week later septic fever came on and the left side became tympanitic. In the night some ounces of fœtid pus drained away. A No. 4 silver catheter was passed into the chest, and 50 oz. of fœtid matter came away, air passing freely in and out. This evacuation gave much relief, and was repeated daily. The cavity was also washed out by injecting warm water through a double-current catheter. The patient soon lost his fever and the matter its odour. The heart's apex passed to the left of the ensiform cartilage, and in the course of 6 weeks the patient had learned to pass a catheter and drain away the fluid every day, the quantity being from 1 oz. to $1\frac{1}{2}$ oz.

On July 30 the following note was taken:—'Percussion-note is good in the left infra-clavicular region. The heart's apex is 1 inch inside and level with the left nipple.' The diseased side measures $1\frac{1}{2}$ inch less than the sound side. 2 oz. of thin pus drawn off daily. After a sojourn at the sea-side the patient returned to his avocation of a translator and writer for the press in tolerably good health. He was urged to submit to further treatment, with the object of closing the cavity, but declined. In a few months the patient ceased to drain the cavity regularly; the matter soon collected in large quantity and compelled him to return to the hospital, where he underwent a long course of injections to close the cavity, carbolic acid, iodine, sulphate of zinc, and other substances being employed. Assiduous evacuation and washing out of the cavity always removed the fœtor and diminished the discharge, but had no effect in producing contraction of the cavity. The patient steadfastly refused to allow a drainage-tube to be passed across the chest. After various periods of more or less suffering, tubercle developed in the right lung, and he died December 17, 1869, or nearly three years after he first came under my care.

Post-mortem.—The upper lobe of the right lung was found to be studded with grey tubercles. The left pleural cavity

was about two-thirds full of fœtid matter; the pleura much thickened, in some places $\frac{1}{3}$ of an inch thick; the left lung was collapsed, lying on the spinal column, and weighed $3\frac{1}{2}$ oz. No communication existed between the pleura and bronchi, as had been suspected during life. The liver, spleen, and kidney showed the albuminoid reaction with iodine strongly.

Case II.

August 17, 1869.—T., æt. 19, was under Sir William Jenner's care in University College Hospital for pleurisy of one month's duration, but having had previous to his illness no hæmoptysis or cough. When I saw him his temperature was 101–2° F.; there was dulness at both apices, rapid loss of flesh, night sweats, and much suffering from dyspnœa; the chest measured 19 inches on the left and 18 inches on the right side; the heart's dulness reached the 5th right cartilage. I drew off 142 oz. of straw-coloured fluid and the wound was closed. Immediately after the operation the chest measured 1 inch less than before, and the heart's dulness did not pass beyond the sternum. In the next 3 days the percussion-note improved, and feeble respiration could be heard as low as the puncture, and the left side collapsed to three-quarters of an inch less measurement than the right. The temperature still continued above normal. In 10 days more the effusion was reproduced, but to a less degree than before. The high temperature (101–3° F.) continued, and the dulness and harsh respiration at the apices increased; therefore Dr. Bastian, who had succeeded Sir W. Jenner in the charge of the patient, postponed a second evacuation. The patient remained 4 weeks longer in the hospital, and then left for the country. In this time, however, the dulness of the left base departed, vocal fremitus returned, and the heart regained the left side, the measurement of the left side being three-quarters of an inch less than the right. Since his departure I have heard nothing of him.

Case III.

J. C. was under the care of Sir William Jenner, in University College Hospital, for pleurisy with effusion of 6 weeks' duration. On July 13, 1868, the left side measured 1 inch more than the right; the heart's apex was level with the right nipple; there was an abscess under the left pectoral muscles;

vocal fremitus was absent, and dulness extended over the whole of the left side. Mr. Erichsen punctured the abscess in front and let out several ounces of creamy matter. Two days later, the heart being still at the right nipple and the abscess as large as before, Sir William Jenner and Mr. Erichsen kindly relinquished the care of the patient to me. When I saw him he was flushed with hectic and greatly prostrated with sweats, diarrhœa, and copious expectoration of pus. I punctured the thorax and abscess at the site of the first incision on a level with and a little inside the left nipple, and 36 oz. of fœtid matter escaped from the thorax. As the patient was so exhausted by this procedure that it was doubtful if he would rally, I postponed the next step for 2 days, by which time he had greatly improved. His fever was gone; he could eat and sleep comfortably. I then passed a long probe, armed with a Chassaignac's drainage-tube, across the thorax and cut down on it between the 9th and 10th ribs behind their angles, and brought the drainage-tube to the surface of the back. His progress was thenceforward satisfactory. Matter continued to drain away freely for a week, gradually becoming thin and less in quantity. In a short time he was well enough to be sent to the Convalescent Hospital at Eastbourne, where he remained till the 23rd of September, having worn his drainage-tube as I put it in. I now found the heart's apex to the left of the ensiform cartilage, and the dulness of the left side almost limited to the level of the drainage-tube. Fearing lest the adhesion between the pleural surfaces should not have extended to the whole of the track of the tube, I cut off the anterior part of the tube only, and drew the posterior end a little out of the chest, that the aperture above the nipple might heal. This took place in a short time, and he returned again to Eastbourne for three weeks, with directions to shorten his tube every three days by cutting off an inch. He returned to me on October 10. The anterior aperture was closed, and the posterior aperture retained about three inches of the tube. This was removed in a few days, and the sinus soon healed.

On November 11 Sir William Jenner dictated the following note:—'There is a scar in front and one behind, between the 9th and 10th ribs. The man is well nourished and in thoroughly good condition. Percussion shows good pulmonary note below the left clavicle to the nipple; below the nipple there is a thin clear sound, the stomach note. The heart's apex is felt just above the left nipple and half an inch

inside it. The cardiac dulness reaches as high as the 2nd cartilage, but is overlapped by lung. There is capital breath-sound as low as the nipple in front and in the axillary region to that level, but below that it is annulled. Posteriorly there is resonance to the 11th rib on the right side, but none on the left side within an inch of the scar. Breathing is free to the level of the scar, but absent below that point. The vocal fremitus is a little stronger on the left than on the right side.' Since his discharge the patient has been seen from time to time, and retains his health and vigour.

Remarks.—I have ventured to take up your time by reading notes of these three cases this evening in the hope that I may induce you to discuss the conditions which make tapping fluid effusions in the pleura advantageous, and also that you may define the rules which should guide the practitioner in operating. This is probably most necessary, for it seems to me that in the text-books of surgery this operation is not treated with the attention which it deserves, many objections being laid down which in practice are not found to be valid, while the advantages to be gained from the operation are not set at a high value. Among the objections most commonly urged against thoracentesis are the following:—

1. The inevitable introduction of air. There can be no doubt that the mixture of air with a serous etrusion is mischievous in many ways, and that the introduction of air into a cavity distended with pus is dangerous; but these dangers are easily avoided, as will be seen when we come to the mode of treating different effusions.

2. The next objection is the impossibility of entirely emptying the chest. It is easy to withdraw all but a very small quantity, and that remaining, if serous, is readily absorbed; if purulent, it gradually escapes through the wound; thus the inability to remove all the fluid is not an important matter.

3. Increase of inflammatory action may take place if the operation be performed during acute pyrexia, or through putrefaction of retained fluid; but ordinary care and postponement of the operation until fever has subsided avoid the danger in the first instance, whilst the maintenance of a free exit for the fluid not only prevents the latter evil, but removes any hectic that may have been present before the operation.

4. A fourth danger is that of syncope from too rapid abstraction of a copious recent effusion; the lung, being in

such cases not bound down by adhesions, rapidly unfolds again and fills itself with blood so fast as to disturb the equilibrium of the circulation. From this cause syncope, but never I believe to a fatal degree, has taken place. In purulent effusions syncope is not met with, for the lung then is very slow to expand. While it is extremely important that all the fluid which can be removed should be drawn off, syncope can be prevented by allowing the current to flow slowly, or by using Dr. Douglas Powell's apparatus for estimating the fluid pressure in the chest. The objection that tapping, even if air be excluded, renders future secretions purulent, is contradicted by the observation that a patient may be tapped many times without the fluid assuming that condition.

Several other minor objections have also been urged against the operation, such as the impossibility of breaking down old adhesions, possible rupture of air-vessels, wound of the lung or viscera, injury to the chest-walls, and persistence of the thoracic fistula, into which I need not go further.

There are certain dangers which make this operation expedient, even during the acute stage of pleurisy. In very copious effusions death by syncope may take place without any warning, from sudden obstruction of the circulation, or slow death by gradual suffocation. Even when the result is not fatal, exhausting dyspnœa and imperfect circulation of the blood are caused by compression and displacement of the viscera. To prevent these, it is often prudent to remove the fluid, even if only for a time. Into this category of cases would come also those effusions symptomatic of organic disease. But tapping is most worthy of discussion as an appropriate treatment of the fluid left in the chest after acute inflammation has subsided, or of fluid secreted without active pyrexia. Here the expediency of tapping depends upon several conditions. If the fluid is left to itself, it is sooner or later in the majority of cases re-absorbed, and the compressed lung often regains all or nearly all its previous volume. And this is the common argument against tapping; but considerable danger is thus incurred. We cannot foretell the duration of the effusion in any particular case. Every day the fluid remains the circulation and respiration are more and more impeded, and progress is made towards permanent lung-collapse, and thus permanent loss of vital power. Again, the fluid may be purulent, in which case it will not be absorbed; and the only effectual means for curing the patient is postponed through our ignorance of the nature of the effusion.

By tapping where no acute pyrexia exists, the viscera are allowed to regain their position, for a time at least; the lung is relieved of its pressure, and is able to take its share in aerating the blood. The fluid does not always form again, and such cases are cured at once. Examples are not few where the fluid drawn off in the second week of pleurisy was not reproduced. One of Trousseau's cases of this kind was a man of 65. But even if the fluid is reproduced, an interval or pause is afforded to the compression of the lung. Reproduction of the fluid is also not a serious contra indication; for reabsorption of this fresh effusion often takes place very rapidly, as in the third case I narrated; so that time is gained in the end by drawing off a quantity of fluid which through inactivity of the surrounding absorbents would otherwise remain for an indefinite period in the thorax. Moreover, adhesions while recent yield and are readily overcome by the expanding lung. This and the prevention of pathological change of the collapsed lung's tissue are reasons for speedy and repeated evacuation of fluid, the importance of which has, I think, been very much overlooked while estimating the value of early tapping. Thus, I venture to think that when the fever is gone, and there is no sign of retrocession of the effusion, the fluid should be at once withdrawn by some means that will prevent the entry of air. If the fluid is serous, all may be allowed to escape that will flow off, and the wound closed with lint and collodion. If it is reproduced to a small extent, the ordinary medical expedients may still be tried to procure its absorption; or if the fluid accumulate in sufficient quantity to compress much of the lungs, it may be withdrawn again and again. By these means the lung will be kept in an expanding condition, and adhesions will not acquire sufficient shortness or toughness to hamper its movements. After the third or fourth evacuation, the injection of iodine may be added to the tapping. A small quantity may be thrown into and left in the cavity, the wound being carefully closed after the operation, though, it must be confessed, the result of injections is by no means constantly successful.

Purulent effusions must be otherwise treated; the membrane which secretes the pus is too thick to allow the lung to expand at once, and is also slow to change its character and cease to suppurate. If the matter be withdrawn, and the wound closed, we are all but certain to have a fresh collection, which will eventually work its way to the surface,

either through the old puncture or somewhere else, while much valuable time will be lost and irremediable damage will have been done to the lung. It is true that a few cases are on record where a single evacuation, followed by an iodine injection and immediate closure of the wound, has cured the patient, but these are exceedingly rare; the ordinary result has been reproduction of the fluid. Cases of purulent effusion, treated by simply tapping and closing the wound afterwards, have nearly always terminated by exhaustion, hectic, and death. Recovery has in rare instances of simple tapping occurred when the wound has never closed after the operation. This has been brought about by the matter being able to drain away as fast as it is produced, while the chest-wall gradually collapses and grows adherent to the lungs. The secreting surface is thus changed, the cavity is filled up, and the matter ceases to be formed. But the common ending in such cases is for more or less matter to remain constantly in the chest while air passes in and out, a state in which putrefaction and septic fever are ultimately set up, and death follows.

Thus, it would seem that in all cases of pyothorax this spontaneous mode of cure through continuous evacuation should be imitated. An aperture should be maintained wide enough for the fluid to escape as fast as it is formed. If this be done, the entry of air is innocuous; for the pus is not long enough in the cavity to decompose, and septic fever is not to be dreaded.

The way in which I have been most successful in curing empyema is by drawing off the fluid with an ordinary trocar, then passing across the chest a long probe, armed with a Chassaignac draining-tube, cutting down on the end of the probe projecting in the intercostal space behind, seizing the end of the tube, and drawing it out. On one occasion I was foiled in my attempt to carry the tube across the chest by the thickness of the thoracic wall preventing me from feeling the probe through the soft parts.

To get over this difficulty, I have had this long trocar made, with which I hope to first draw off the fluid; then to traverse the thorax and perforate the wall from within outwards; lastly, to attach a drainage-tube to the projecting end of the instrument, and, by withdrawing the trocar again, to bring the tube into the chest through the second opening, and then out through the first opening, and so carry it right across the chest.

By the tube not only is a sufficiently free exit for the pus

maintained, and partial closure of the cavity by isolated bands of adhesion prevented, but I am inclined to think the tube acts as a foreign body in the pleura, and hastens the adhesion of the lung to the chest. This it will be remembered was the mode of cure adopted in one of the cases mentioned this evening. Keeping a tube in the thorax through only one aperture is not sufficient, for it does not afford a sufficiently rapid outlet for the matter; nor does the daily evacuation of the fluid with a catheter procure complete closure of the cavity. Constant drainage, in the presence of which no accumulation can take place, is, I believe, the only reliable means for effecting this object.

There are some exceptions to this course of recovery from empyema that must be explained, I believe, by long-continued pressure of the fluid having caused permanent collapse of the lung, and by insufficient elasticity of the chest-wall, so that a cavity remains permanently. Yet very considerable health and enjoyment of life are possible, if the pus be regularly drained away, as has happened in many well-known instances. For these cases, stimulating injections are no doubt beneficial, but my experience of injections does not lead me to place much value upon them when used to set up adhesive inflammation of the cavity. Nevertheless, Boinet and others have gained such good results with iodine injections that now and then their use may be advised. When employed to correct putrefaction, injections are far inferior to regular and complete evacuation of the pus. I believe that if the cavity become permanent, the daily injection of a little warm water to wash out the remainder of the secretion is all that is necessary.

In conclusion, I beg to reiterate the points which are of chief importance in deciding upon tapping:—

1. The removal of fluid from the pleura need hardly ever be a source of much suffering or danger to the patient.

2. Whenever the effusion is copious, it is prudent to evacuate it both to relieve dyspnœa and to ward off a fatal termination.

3. It is advantageous to replace the usual custom of leaving chronic fluid effusions to natural absorption by tapping whenever the condition of the patient is stationary.

4. The longer the fluid has existed, the more urgent is the need for tapping so as to enable the lung to expand before a permanent change has taken place.

5. After tapping serous effusions, the wound should always

be closed, or at least until several evacuations have taken place, and no air should be admitted on these occasions.

6. When the fluid is purulent the admission of air is immaterial, provided a free and continuous exit is maintained for the pus; and this free drainage is the cardinal point in the cure.

XVII.—*Case of Angina Pectoris, relieved by Nitrite of Amyl.* By F. E. Anstie, M.D. *Read February* 11, 1870.

As the therapeutic value of nitrite of amyl is under the consideration of this Society, I may be allowed to bring forward an example in which this drug has been employed with remarkable success in angina pectoris. The patient's history is as follows:—Rev. C. S., aged about 50, is one of the most marked instances of the nervous temperament that I have ever seen. Along with great keenness of sensibility, and an instinctive appreciation of literary and æsthetic subjects, he has always shown a tendency to spasmodic and neuralgic affections. He began to suffer from spasmodic asthma more than 20 years ago, and has suffered from it at intervals ever since. At times, and especially when the asthma became complicated with bronchitis, he was laid aside; but on the whole he has worked on continuously and laboriously at his professional duties. Besides the asthma, he suffered frequently from severe attacks of facial neuralgia, chiefly supra-orbital and nasal; and he offers an example of that curious tendency, which I have described elsewhere, of certain neuralgias to terminate in erysipelatoid inflammation of the skin. This has happened to him several times. In the year 1865, after an unusual stress of professional work, he was evidently breaking down; and one day he was seized with an attack which I did not witness, but which from the description given me I was at first inclined to suppose epileptoid. However, he shortly afterwards had another, and this time there was no mistaking the original character

of the paroxysm. There were the peculiar precordial anguish, the pain running down the left arm,* the almost total arrest of circulation, the grey lividity of countenance, and the possible sense of impending dissolution.

A most careful stethoscopic and sphygmographic examination, after the termination of the attack, failed to elicit the slightest evidence of organic mischief in the heart; and to conclude this part of the subject, I may say that frequent repetition of these explorations up to within a short time of the present date has convinced me that there is nothing of this kind, or at most there is only a doubtful dilatation, not considerable in amount. The anginal paroxysms recurred with considerable frequency; and during the first twelve-months they were very severe, on several occasions causing great fear of his immediate decease. The fatal issue was, I believe, only averted by large doses of sulphuric ether and brandy. During the whole of this year he was completely laid aside from work; but gradually, by learning that he could greatly mitigate the attacks by taking drachm doses of ether immediately on the occurrence of the first symptoms, he began to get better, the attacks were less frequent, and altogether less alarming. From that time to this he has resumed, at first partially, and then in large measure, his professional duties. It need hardly be said that I tried in this case all manner of tonic and antispasmodic remedies, with a view to get rid of the paroxysmal tendency; but he was unfortunately unable to tolerate either arsenic or strychnia, with both of which remedies I have accomplished very much in other cases of neurotic angina. Between the distress caused by his old complaint, the asthma, and the inevitable recurrence of the anginal attacks whenever the patient was subjected to unusual labour or excitement, he could only be kept in moderate comfort and working capacity by the frequent uses of large doses of ether, and a daily amount of alcoholic stimulants, which was greater than I liked to give or he to take. It was towards the end of December last that I first tried the amyl; I left a small bottle containing half an ounce of it in his possession, with exact instructions to the following effect. On the first symptoms of a paroxysm of angina, he was to get the bottle

* In later attacks both arms have been affected with the pain, and a very curious vascular tumidity of these limbs, even down to the finger tips, succeeds, when the pain and spasm are over. I suppose this is paralytic dilatation of arterioles.

open, and as soon as their character was fully declared he was to put the bottle to one nostril (closing the other with the finger, and keeping the mouth shut), and take one long powerful inspiration. The result of his first experiment was very remarkable: the first sniff produced, after an interval of a few seconds, the characteristic flushing of the face and sense of fulness of the head; the heart gave one strong beat; and then at once he passed from the state of agony to one of perfect repose and peace, and at his usual bedtime slept naturally. This experience has, I am happy to say, been repeated on several occasions, and with this fortunate result; that so confident now is the patient of being able to cut short the paroxysm, that he has discarded all use of ether, and greatly reduced his allowance of stimulants, with marked advantage to his appetite and general health, and diminution even of his old and inveterate complaint, the asthma. I do not hesitate to say that a greater practical boon has seldom been conferred on a patient than has been granted to this gentleman by the discovery of the nitrite of amyl.

As Dr. Sanderson has referred to the question whether nitrite of amyl may not perhaps be a relaxer of spasms in other kinds of involuntary muscular fibres besides those of the arterioles, I beg to say that this very question has engaged my attention, in reference to a subject which I have lately studied a good deal, viz., the spasmodic cramps of the stomach, with flatulence, to which old people are liable. From two or three cases in which I have tried it, there can be little doubt in my mind that amyl is a prompt relaxer of spasm in the alimentary canal; and I should say that it ought to be extensively employed in colicky affections, where the patients are comparatively young and organically sound. But in the aged I should hesitate, on further reflection, to recommend its use. The dilatation of the cerebral arterioles that it produces must be so great and so sudden, that a rather sharp strain must be thrown upon the capillary network; and as this is so frequently the seat of the earlier degenerative changes of advanced age, it might not improbably happen that a rupture and a cerebral hæmorrhage might be induced.

XVIII.—*A Case of Scarlet-Fever, intercurrent during Nephritis.* By Arthur Andrews. Communicated by Dr. Gee. *Read February* 11, 1870.

WHEN we consider the strong predisposition to nephritis which scarlet-fever leaves behind it, it becomes an interesting question to ask, 'What influence does scarlet-fever exert upon nephritis already existing?' Inasmuch as idiopathic nephritis is rare in children, and scarlet-fever comparatively rare in adults, the sequence of inflamed kidneys complicated by scarlet-fever is not often met with. A case bearing upon this point having recently occurred in the wards of Dr. Black at St. Bartholomew's Hospital, it was thought that the Society might judge a few details of the case not unworthy its attention.

Robert B., aged 26 years, was in perfect health until October 23, 1869, when he got very wet. On the 24th and 25th, he shivered; his legs became swelled; his urine was scanty, high-coloured, and thick. On the 26th, the fourth day of illness, he was admitted into the hospital.

Oct. 26.—4th day: A healthy-looking man. Temperature of axilla, 98°; pulse 90, natural; skin dry; bowels confined. Legs and loins pit on pressure. Urine not obtained. He was ordered a warm bath, and compound jalap-powder.

27.—5th day: Urine scanty, high-coloured, becoming nearly solid when boiled; showing under the microscope both blood disks and epitheliated casts. Bowels relieved.

28.—6th day: 10 oz. of urine in 24 hours. Legs less swollen.

31.—9th day: 14 oz. of urine; which, when boiled and suffered to settle, affords a precipitate one-third the bulk of the whole.

Nov. 2.—11th day: 12 oz. of urine.

4.—13th day: 32 oz. of urine. Legs much less swollen; skin natural; feels well.

5.—14th day: Urine nearly natural appearance, 30 oz., albumen about $\frac{1}{8}$th.

6.—32 oz. 7.—52 oz. 8.—52 oz.

9.—18th day: Looks pale; bowels open loosely three times yesterday. Urine natural colour; turbid with urates, and contains a third of albumen; 28 oz. only.

10.—19th day: Urine 32 oz. At 2 P.M. to-day he had a severe rigor: his temperature rose to 106° F. 8 P.M. Sweating profusely; 101° F.

11.—20th day: 11 A.M. 98·5° F. Feels better. Urine 52 oz. In the afternoon he had another rigor, but not so severe as on the 10th. 8 P.M. 102·2° F. Bowels open thrice.

12.—21st day: 11 A.M. 98·5° F. Sweated profusely in the night; urine 32 oz., much less albuminous. Ordered 2 grs. of sulphate of quinine thrice daily.

13.—22nd day: A slight rigor in the afternoon. Urine, 36 oz. 8 P.M. 103·4° F.

14.—23rd day: 11 A.M. 99° F. Urine 28 oz. Sweated profusely in the night. 8 P.M. 99·6° F.

15.—24th day: Bowels open five times yesterday. Urine, 24 oz., albumen $\frac{1}{5}$th, epitheliated and granular casts. 11 A.M. 97·8° F. 8 P.M. 97·8° F. Pulse 60.

16.—25th day: Urine 24 oz. 11 A.M. 99° F. 8 P.M. 98° F.

17.—26th day: Urine 32 oz. 11 A.M. 98·5° F. 8 P.M. 99·4° F.

18.—27th day: Urine 42 oz. 11 A.M. 99° F. 8 P.M. 98·2° F.

19.—28th day: Urine 20 oz. 11 A.M. 98·5° F. 8 P.M. 98·2° F. Feels well; bowels still relaxed; legs only slightly swollen.

20.—29th day: Urine 20 oz. 11 A.M. 98° F. 8 P.M. 98·5° F.

29.—Has greatly improved; gets up daily: passes 76 oz. of urine in 24 hours, containing very little albumen.

Dec. 4.—43rd day: Urine natural in appearance, and containing only a trace of albumen.

5.—44th day: Evening: complains of sore-throat, and of feeling hot: 104° F. Throat red and swelled.

6.—45th and 2nd day: No sleep; throat worse. 2 P.M. a bright red rash on the trunk; 103·8° F. Urine 24 oz. in last 24 hours; sp. gr. 1025; almost black from the presence of blood; highly albuminous. 8 P.M. 105·5° F.

7.—46th and 3rd day: 11 A.M. 104·4° F. Feels easier; throat easier; rash quite scarlatinal, but less bright; urine more abundant, and not so deeply coloured. 8 P.M. 102·4° F.

8.—47th and 4th day. Much the same. 11 A.M. 101·4° F. 8 P.M. 102·4° F.

9.—48th and 5th day: 11 A.M. 100·6° F. Rash nearly gone: urine much lighter in colour, and containing very little albumen: throat nearly well. 8 P.M. 99·6° F.

10.—49th and 6th day: 11 A.M. 99·4° F. 8 P.M. 99·2° F.

11.—50th and 7th day: 11 A.M. 99·4° F. Urine 44 oz.,

almost natural in colour, and containing a trace only of albumen. 8 P.M. 98·2° F.

12.—51st and 8th day: 11 A.M. 99° F. 8 P.M. 99·2° F.

13.—52nd and 9th day: 11 A.M. 98·6 F. 8 P.M. 100° F. Urine more abundant, natural in colour, not albuminous. Throat remains rather sore.

14.—53rd and 10th day: 11 A.M. 100° F. 8 P.M. 99° F.

15.—54th and 11th day: 11 A.M. 99° F. 8 P.M. 99·4° F. Apparently well: no œdema of any part of body; urine 66 oz., not albuminous.

16.—55th and 12th day: Urine 68 oz., not albuminous.

18.—57th and 14th day: Urine 28 oz. only, slightly albuminous, natural colour.

19.—58th and 15th day: Urine 36 oz.

20.—59th and 16th day: Urine 56 oz.; more albuminous; not smoky.

21.—60th and 17th day: Urine 96 oz.

22.—61st and 18th day: Urine 60 oz.; albumen $\frac{1}{6}$th; not smoky.

24.—63rd and 20th day: Urine 64 oz.; albumen $\frac{1}{4}$th; not smoky.

26.—65th and 22nd day: Urine 94 oz.; albumen much less.

30.—69th and 26th day: Urine 70 oz.; albumen the same.

Jan. 1.—71st and 28th day: Urine 65 oz.; albumen $\frac{1}{10}$th.

10.—80th and 37th day: Urine still moderately albuminous; legs swell towards night.

15.—85th and 42nd day: To be discharged. Urine natural in appearance, but still contains albumen: a few fragmentary granular casts; some with pyoid cells. Legs swell a little.

The case may be summed up as follows:—

A perfectly healthy young man incurred, in consequence of exposure to wet, acute nephritis. For 11 days after the exposure his urine was scanty, reduced to 12–14 oz. in the 24 hours, and highly albuminous. Then, as is mostly the case, his urine became suddenly more copious, and less albuminous. Day by day the quantity of albumen diminished, until, on the 38th day of his nephritis, we have the following note: 'He has greatly improved; gets up daily; passes 76 oz. of urine in 24 hours, containing very little albumen.' On the 43rd day the urine contained a mere trace of albumen. The next day, scarlet-fever set in, in the evening. On the second day of the fever the rash was well marked;

the quantity of the urine fell to 24 oz. in the 24 hours; it was almost black from the presence of blood, and highly albuminous. On the 3rd day of the fever the urine was more abundant and less bloody. On the 5th day of fever, the urine had resumed the characters it possessed before the onset of the fever; viz., natural appearance, and very slightly albuminous. On the 9th day of fever the urine was free from albumen, and remained so until the 14th day, when the albumen reappeared, and day by day increased in quantity until it was considerable. And the albuminuria remained. On the 85th day from the onset of the nephritis, and the 42nd day from the beginning of the scarlet-fever, the urine was still moderately albuminous.

The points of interest are these: — The sudden and abundant hæmorrhage from the kidneys, coincident with the occurrence of the scarlet fever; the rapid diminution of the hæmaturia, and also of the albuminuria, until on the 9th day of the fever, the urine was not albuminous: then at the end of the second week of the fever the albuminuria recurred (that is to say at the period when the urine of uncomplicated scarlet fever so often becomes albuminous for the first time), and from this time never disappeared.

Concato * has published an account of two cases of chronic nephritis, which were attacked by variola. The quantity of albumen (which had previously been moderate) suddenly and greatly increased on the appearance of the eruption. When suppuration set in the albumen diminished as suddenly as it had increased; until on the 9th and 12th days from the appearance of the eruption, no trace of the albumen remained. Nor did the albuminuria recur so long as the patients were under observation.

It will be seen that the small-pox and scarlet-fever exercised precisely the same influence upon the nephritis, except that the scarlet-fever left a disposition to nephritis behind it, which small-pox does not; and hence, unfortunately, in our patient, the albuminuria which had ceased, recurred and became persistent.

The hæmaturia of the first day or two of the fever resembled remarkably the hæmaturia which we call paroxysmal or intermittent, so far as the intensity of the hæmaturia was concerned, and its sudden onset and cessation.

* Virchow's Jahresbericht, für 1867: ij. 170.

XIX.—*Case of Cancer following Ichthyosis of the Tongue.*

By James Paget. *Read February* 11, 1870.

THE last volume of the Transactions of the Society contains a paper by Mr. Hulke relating to a case in which a tongue, long the seat of ichthyosis, became the seat of fatal epithelial cancer. Mr. Hulke refers to a second similar case seen by him, and in the discussion that followed the reading of the paper I mentioned a similar case from which a specimen is in the Museum of St. Bartholomew's Hospital, Vol. I. Appendix No. 4.

As a supplement to Mr. Hulke's paper, I beg leave to communicate to the Society a case which I have lately seen.

A lady, 42 years old, consulted me in August, 1869, with patches of ichthyosis on the right side of the tongue, presenting the characters described by Mr. Hulke. The patches had been increasing for twelve months. They occupied only the papillary structures, and had no indication of cancer in or near them. In December, 1869, thickening and hardening were first observed in and beneath the patches of ichthyosis, and in another month the whole side of the tongue was occupied with well-marked ulcerated epithelial cancer, and a lymph-gland under the angle of the jaw was enlarged and hardened, probably with the same disease.

The ichthyosis of the tongue became the seat of cancer in this case much more rapidly than in the others known to me. And in this patient there was hereditary tendency to cancer, for her father died at 62 with cancer of the liver, and his sister at 46 with cancer of the uterus.

XX.—*On Expansion of the Antrum of Highmore.* By Charles H. Moore. *Read February* 25, 1870.

In some occasional publications, chiefly in the 'Lancet,' I have drawn attention to a few rare consequences of perforations, by ulcer or otherwise, through the walls of the alimentary canal. Under the pressure exerted by its muscular coat the contents of the tube were ejected through the apertures, and in particular instances feculent matter was poured from the jejunum into the groin, air from the appendix vermiformis so far as the knee-joint, bread and other food from the pharynx into the loose sub-fascial tissues of the neck. In some cases the force of the act of deglutition at the fauces gradually distended an ulcer of the tongue into a large pouch. In the case now to be narrated a yet higher part of the alimentary tract was perforated, and consequences comparable to those just referred to appear to have ensued.

In December, 1867, an elderly gentleman showed me a swelling of his right cheek. There was a rounded prominence below and in front of the right molar, by which the furrows natural to a slender person of his age were obliterated, and the play of the features on that side of the face was restrained. This projection of the cheek was due to a hemispherical tumour, rising abruptly from the right superior maxillary bone above the bicuspid and first molar teeth. It was partly covered by the cheek, and partly by the mucous membrane raised from the jaw. There was no displacement of the three teeth which adjoined it, and they were painless, useful, and apparently sound; neither was the palate misshapen, nor the right nostril or orbit in any way altered. The tumour was bony, and smooth as the end of an egg, but in two parts of it there were circular defects of the bone, in which, through the sound mucous membrane, an interior substance could be made out at once soft and tense, but not bulging in the apertures. The tumour had existed for more than a year. It was painless, but was increasing and becoming unsightly. I stated that it was not a cancer or any solid growth, and advised that it should be watched, but should not be at that time interfered with.

A year elapsed before my attention was again requested to this tumour. It gave no pain, but yet increased, until December, 1868, when the mucous membrane over the hinder

of the two apertures in the bone gave way, and a thick pultaceous substance of a brown colour, and of fœtor indescribable, escaped into the mouth. In quantity it was but small, but the odour of it was most pungent and penetrating, and the constant evacuation of it into the mouth disgusting. The aperture being very small and inconveniently placed, I laid open the membrane covering the anterior and larger orifice in the bone, and syringed out of the tumour a considerable quantity of its offensive contents. A curved probe introduced through this opening moved freely in a cavity within the bone. It passed upwards to the level of the floor of the orbit, inwards to the nasal wall of the antrum, and outwards into the swollen cheek, where its point could be felt uncovered by bone. No trace of an osseous necrosis was detected in any part of the cavity.

Considerable swelling of the cheek ensued, as well as of the mucous membrane covering the tumour within the mouth. The skin became red and very tender, and at one time seemed likely to point as an abscess. The tumefaction inside the mouth obscured and narrowed the openings into the tumour, and interfered with the removal of its contents, which remained as pungently fœtid as at first. But a silver tube being adapted to the opening, and kept in it, the cavity was freely and frequently washed out, now by syphon, now by syringe, with a lotion of carbolic acid. In the second week a small slough presented itself in the silver tube, and when pulled upon dragged in the cheek. The escape of this slough was followed by the subsidence of the redness of the cheek and by a diminution in the quantity of the discharge, but this did not at once lose its peculiar fœtor.

The disease thus proved to be an enlargement of the antrum, in some respects peculiar. For the expansion was limited to the anterior and external walls. There was no appearance of pus in the brown pultaceous stuff which escaped, and no burrowing, as in abscess of the antrum, about the gums, palate, or orbit. The apertures in the bony shell were circular, as results of pressure, not of ulceration; and they had not, under a period of two years, extended through the mucous membrane covering them. The fœtor was peculiar, and not due to necrosis. Though a small slough came away from the inside of the cheek, it could have been but a recent production, probably subsequent to the opening and syringing of the cavity—a result, not a cause, of the disease. Moreover, it appeared remarkable

that, if this were an abscess of the antrum, it should fail to discharge itself through the nostril. Yet certainly at no time, even when the fœtor was at its worst, was any of the discharge found to pass that way. I concluded that the matters discharged had not come from the mucous cavity of the antrum, but from a space between its lining membrane and the bone; that they had in fact, as they accumulated, expanded the bony antrum outward and forward, and thrust the endosteum inward against its nasal wall. The antrum, as a mucous cavity, was thus obliterated, and the inverted mucous endosteum obviated any communication between the new space, with its fœtid contents, and the natural mucous orifice into the nares.

The questions, however, still remained as to the nature and origin of the distending force, and on the subsidence of the inflammatory swelling I made a more careful examination of the teeth. Both bicuspids were faultless; the molar also was itself good, but, noticing some tartar on it, I cleared that away, and found the gum wasted and receding from the outside of the tooth. A fine probe introduced at this spot between the gum and the tooth, passed almost easily up the socket for an inch and three-quarters above the crown of the tooth, when it was stopped by the floor of the orbit. The origin of the fœtid collection in the bone thus appeared to be cleared up. Pressure in mastication had gradually driven food up the socket between the first molar and the wasting gum. The apex of the socket happening to be defective, the food found its way into the antrum and detached the endosteum. Slowly accumulating, but by a kind of hydraulic power, it also expanded and perforated the bone, and led to the other mischiefs which have been detailed. If any suppuration did at last occur, yet mainly, and for a long period, the imprisoned material appears to have been food alone, which by time and warmth corrupted.

With regard to the treatment and later progress of the case, I may say, that upon the supposition that the disease was an expansion of the bony antrum, due to the forcible intrusion of food through a tooth-socket, it was evidently necessary either to stop the chink by which the food entered the antrum, or to maintain a free outlet for it, if its entrance could not be prevented. I accordingly kept in the aperture I had made, first a silver, and then a vulcanite tube, which sprang open when inserted and fixed itself, and through this all necessary cleansing of the cavity was easily performed.

In consultation with Mr. Salter it was then discussed whether the first molar tooth should be extracted, and a silver plate, perforated and having a moveable plug, should be fitted in the socket of it, the openings in the mucous membrane being then allowed to close. But it was decided to postpone this question until the natural progress of the case should have first shown it to be advisable; for it appeared probable that, the expanding force being neutralised by the present free opening of the cavity, the bony walls would collapse.

More than a year has passed since this decision. A springed tube has been constantly worn, and the bony walls have so far collapsed that there is no longer any swelling of the cheek, and the natural furrows have reappeared. The opening between the mouth and the antrum being constantly open, admits a little food into the latter cavity, but neither this nor the presence of the tube gives rise to serious discomfort, and the patient is content to syringe the antrum regularly until it is clean, so long as that little trouble is the alternative of losing a good tooth.

XXI.—*Case of Aphemia of nine months' duration, in which speech was restored by the education of the organs of articulation.* By J. S. Bristowe, M.D. *Read February* 25, 1870.

GEORGE EDWARD B., aged 36, was admitted into St. Thomas's Hospital on November 1st, 1869. He gave the following account of himself. He is a native of Canada, and has been for 15 years in the employment of a steam-packet company as steward, for the last seven years of which time he has been engaged chiefly in the service between India and China. He had enjoyed uninterrupted good health up to the 7th of last March, at which time the steamer to which he was attached was in the straits of Banca, close to Malacca, *en route* for Singapore. On the morning of that day he complained of headache and feverishness, but did not feel it necessary to give up work. At 1 P.M. he took a

strong dose of quinine; and half an hour afterwards was attacked suddenly with giddiness and faintness, and became almost immediately unconscious. He remained in this condition until 5 P.M. He learnt subsequently that during this period of unconsciousness he had had a series of very severe epileptic fits. When he came to, he found himself lying on the floor of the cabin; and he soon discovered that, although he could see and understand everything that was going on, he was totally unable to move a limb, had entirely lost the faculty of speech, and was 'stone deaf.' He could not hear a pistol fired off close to his ear. He remained in this condition as nearly as possible, up to the time of his arrival at Singapore on March 20. He was then sent to the general hospital, and placed, I believe, under the care of Dr. Randell.

At that time his right leg and arm were still weak; his left leg and arm were numb and quite powerless; he had pain and tenderness of the scalp; he was still perfectly deaf and dumb; and had, further, considerable difficulty in masticating his food, in consequence apparently of the movements of mastication causing him a good deal of pain at the back of the head. He gradually improved in the hospital. In the first week he regained the complete use of his right side, and audition so far returned that he could hear when spoken to loudly. His hearing was completely restored by April 22. He also regained to a great extent the use of his left arm, and improved remarkably in his general health.

Among other remedies employed were quinine, strychnia, hypophosphate of potash, galvanism, shower-baths, counter-irritants, and friction applied to the left leg.

He was dismissed from the hospital in the middle of June, and put on board a sailing vessel homeward-bound. At this time he was still quite incapable of articulation, and had difficulty of mastication, the left leg was useless, and the left arm still so weak that he could not use with it a crutch which had been provided for him.

During his voyage, which occupied over four months, his general health still further improved; he regained the use of his left arm, and lost almost entirely his difficulty of mastication, and he learnt to walk with crutches. He arrived at Liverpool on October 25, and was received into St. Thomas's on November 1.

State on Admission.—He was a man of somewhat low stature and in good condition. He complained of numbness in the left leg, and had little or no power in it or

control over it. He could walk totteringly with a stick, dragging that leg after him; and in getting into bed he had to lift the limb into it with his hands. There was a good deal of trembling in the leg when he tried to use it, but there were no very obvious reflex movements in it. There was no paralysis of any other limb, and he had, as he had had all along (at all events since his entrance into the hospital at Singapore) perfect control over his rectum and bladder. His hearing, sight, and other special senses were perfect. He complained of pain and tenderness of the scalp, but there was nothing abnormal to be felt there, and of some pain during mastication at the back of the head and neck on the right side, a little behind the mastoid process. He seems also at this time to have had a little difficulty in mastication, yet he could eat solid food, and swallowed with ease. He was unable to speak, but appeared to be perfectly sensible. There was no sign of heart, or lung, or kidney disease.

Three days after admission I saw the patient for the first time and examined him pretty carefully. I found that he was perfectly intelligent, that he understood everything that was said to him, that he could read well and comprehend everything that he read, and that he could maintain a conversation of any length, he writing on a slate and his interlocutor speaking. He wrote indeed with remarkable facility a very excellent and legible hand, expressing himself with perfect point and accuracy, except for an occasional error of spelling and construction due evidently to defective education. But he could not speak, he could not utter a single articulate sound. I ascertained, however, that he could perform with his lips, tongue, and cheeks all possible forms of voluntary movement, and also that he was capable of vocal intonation, in other words that he could produce musical laryngeal sounds. I asked him to hum a tune, and believe that so far as his power over the larynx was concerned he could have done it; however he did not make the attempt.

No change took place in his condition up to about November 25, at which date, having spoken to him casually from time to time during my periodical hospital visits, I had come to the conclusion, judging from the facts of his intelligence, of his perfect ability to understand spoken and written language, and to write, and of his complete voluntary power over the organs of articulation, that his inability to speak was most probably due to his having forgotten how to combine automatically the movements of these organs so as

to obtain from them the elementary sounds which in combination constitute articulate speech, and I had determined to make the attempt to teach him.

I explained to him my view of his case, which he appeared perfectly to understand; and I began with my first lesson, which lasted five or ten minutes only. I showed him that ordinary vocal sounds are compounded of two factors, namely, laryngeal intonation (which he was already capable of producing), and articulation effected by means of the lips, tongue, and associated parts (which he was as yet totally incapable of producing). I got him then first to sound a laryngeal note; and subsequently, by explaining to him, and showing him, how to modify the shape and size of his oral passage and aperture, and getting him at the same time to expire either with or without laryngeal intonation, made him sound successively both in a whisper and in a loud voice several of the simple and more common vowel-sounds—*a* in gate, *a* in art, *a* in all, *e* in feel, *oo* in root, *o* in hole, and that which is sometimes called 'ur vocal'—the vowel-sound in the first and last syllables of the adjective 'earlier.' I do not mean to say that he learnt at once to articulate these letters accurately; but he so far succeeded that those about him easily identified his attempts at pronouncing them; and he himself fully recognised his success. At my next visit, three or four days afterwards, I found that he had by practice completely mastered the sounds which I had taught him, and I set to work to teach him the labials, *p*, *b*, *f*, *v*, and *m*. I may as well, perhaps, explain minutely, in reference to these letters, the method of instruction which I pursued. I closed my lips firmly and then opened them with a sudden smack, and got him to do the same. We both thus pronounced the essential sound of *p*. I asked him if he did not recognise it, and I made him repeat the process until he recognised it fully. I then explained to him that in order to make the sound perfectly clear, it was essential that a vowel-sound should be prefixed or appended to it. And I got him to follow up the sound of *p*, as above produced, by a vocalised *e*. In his first efforts the two sounds were uttered at a considerable interval one after the other, but gradually he approximated them until he succeeded in making them very nearly continuous. There remained, however, even at the end of the lesson a slight but quite appreciable fault. Then, closing my lips as before, I produced laryngeal intonation without allowing air to escape through

my nose, and whilst producing this sound in my throat opened my lips. I made him perform the same acts, and recognise that he had thus, almost without knowing it, articulated the letter *b*. Next, still setting him the example, I made him place his upper teeth upon his lower lip, and blow between them without associating therewith any laryngeal sound; he thus uttered the sound of *f*, and perceived clearly that he had done so. Then, by repeating exactly these actions, with the exception that he was now made to utter a musical note during the period of expiration, he sounded and recognised that he had sounded the letter *v*. Finally, I got him to close his lips, and without opening them again to make a continuous laryngeal sound—in other words to allow the air passing between his vocal cords to escape by the nose; the essential sound of *m* was the result. I need scarcely add that, not only in the first, but in every other case, as soon as I had made him recognise that he had really articulated the letter-sound which I was teaching him, I then endeavoured to make him associate its pronunciation with that of some prefixed or appended vowel, and in every case with considerable though not absolute success.

At subsequent visits I taught him by the same process (I need not go further into the details) the lingual and guttural consonantal sounds. And thus in the course of four or five lessons, each of about ten minutes' duration, given within less than a fortnight, he acquired the power of articulating all the simple vowel-sounds and all the simple consonant-sounds, including those of *th* in 'thing,' and *th* in 'this,' *ng* in 'tongue,' *sh*, and *z* in 'azure.'

On December 4, he wrote on his slate, 'I don't feel very well this morning. I got a fall last Thursday night (accidentally), one of my crutches slipped, which gave me a severe shaking. My back is rather painful, and a great deal of pain in the head from the fall. Can pronounce all the vowels except *i* and *u*. Can't pronounce *g*, *h*, *j*, *q*, *w* and *y*.' The truth, however, was, as is stated above, that he could pronounce all the elementary articulate sounds, but he could not yet combine sounds which he had not been taught to combine, and he could not therefore utter the English names of the letters which he here enumerated. It is scarcely necessary for me to point out that *i* and *u* represent compound vowel-sounds, and that each one of the other letters which follow is made up of at least three distinct literal sounds.

At the end of a fortnight from the beginning of my treatment I began to teach him to combine letters. Selecting certain consonants I made him pronounce them in conjunction with the various vowel-sounds. I found little difficulty now in making him do this; and I recommended him to practise new combinations for himself, for which purpose I suggested that a child's spelling-book might be useful to him; and he got one. I think it was at my next visit, three or four days afterwards, that he greeted me for the first time with a somewhat slowly and carefully uttered 'Good morning, Sir.' His progress was now marvellous in its rapidity. Within another ten days he was able to talk well, except that perhaps he spoke somewhat slowly, and evidently had to give more care and thought to the pronunciation of his words than healthy people need to do. He improved subsequently in readiness of speech, but even when he left the hospital spoke perhaps a little slowly and carefully. This manner may, however, have been natural to him. It may be worth while to add that when his speech was restored he spoke with his original American accent.

The lessons which I gave him were, as I have shown, few and short. But he himself, as soon as ever he had appreciated the fact that he had organs capable of evolving articulate sounds, supplemented my instruction with the most zealous practice. Thus the vowel and consonantal sounds which he uttered somewhat imperfectly during a lesson were learnt accurately by my next visit; and as soon as he had begun to combine sounds, he practised them in various combinations with great industry; the sister of the ward, and nurses, and more especially three or four intelligent patients who were friendly with him, and interested in his progress, giving him constant assistance. Before he could articulate at all, and in the earlier period of his recovery of articulation, he often remarked that there 'was a sort of difficulty he could not explain' which prevented him from speaking; and always during his earlier attempts he complained that a pain at the back of the right side of the neck and head attended his attempts; pain of the same kind apparently and in the same place as that which had formerly attended the acts of mastication. This pain disappeared, however, before long.

I have hitherto described the patient's progress while in the Hospital, 'quoad' the recovery of speech only; and this indeed may be regarded in one sense as merely a little by-

play; for he was never (except for a day or two) under my medical care. During his residence in the hospital he was treated variously with iodide of potassium, quinine and iron, hypophosphate of soda, and quinine, and at one time had the crown of the head shaven and bran poultices applied to the part. I do not think, however, that any of these measures had the slightest influence over his recovery of articulation; and they certainly do not seem to have had any effect upon his paralysed limb. For at the end of December, by which time his speech was perfectly restored, the limb was still according to his statement numb, and it was so feeble as to be of no use to him; he could move it slightly, but his power over it was far too little to permit of its use in progression; and he still (as he had done all along) occasionally fell when walking with crutches. On January 6, he came for a few days under my care. His limb was still apparently as useless as on admission, and as galvanism had not yet been used to it in our hospital, I ordered it to be galvanised (faradised) daily. Under this treatment he rapidly regained power in the leg, and in a week could walk without the aid of a stick; indeed he felt so well in all respects that he considered he was able to resume his occupation, and wished to leave the hospital for that purpose. I urged him to remain a little longer, but notwithstanding my wishes he left on January 18.

Remarks.—The case which has just been recorded is one of an exceedingly rare class. Trousseau, who includes all forms of loss of speech under the name 'Aphasia,' says, 'There is, however, a form of aphasia in which the intellect remains unaltered. Memory is good, the patient writes easily, and expresses his thoughts correctly in writing as educated deaf-mutes do. This form is very rare, and it has seemed to me to differ so widely from the other, that I have thought myself warranted in regarding it as a distinct variety, particularly as in all the cases of the other form of the disease, the inability to write is proportionate to the inability to speak. The following case struck me the most: I received one day in my consulting-room a carrier of the Paris Halles, very young, and having the appearance of a man enjoying excellent health. He made signs that he could not speak, and handed to me a note in which the history of his illness was detailed. He had written the note himself with a very steady hand, and had worded it well. A few days previously he had suddenly lost his senses, and had been unconscious for nearly an hour. When he came round, he exhibited no

symptom of paralysis but could not articulate a single word. He moved his tongue perfectly, he swallowed with ease, but however much he tried he could not utter a word.' . . . 'He was ineffectually galvanised for a fortnight; but without any special treatment, he completely recovered his speech five or six weeks after the invasion of the complaint. It is very remarkable, however, that during the whole course of this singular affection he could manage all his affairs, continue them even in a certain measure, by substituting writing for speech.' Dr. Bastian, in his excellent article 'on the various forms of loss of speech in cerebral disease,'* while distinguishing (as others have done) those cases in which the defect is amnesic or due to impairment of memory of words (either from paralysis or incoordination) from those cases in which the defect is ataxic, or in which while the memory of words remains, the mechanism by which this 'incites the automatic acts of speech' is interfered with, divides the latter class of cases into three groups. In one of these groups, to which he limits the application of the term 'aphasia,' there is loss of power both of speaking and of writing, in another to which he assigns (as does Dr. W. Ogle) the name 'agraphia,' there is loss of power of writing only, and in the third, to which he suggests the word 'aphemia' should be limited, there is loss of power of speaking only. My own case is obviously a typical example of aphemia in the sense in which Dr. Bastian employs that word. He speaks of these cases as forming 'a very remarkable class, the examples being very scarce;' and that they are very scarce is obvious from the fact that the only true case of the kind which he cites or refers to, is the case of Trousseau's quoted above.

In addition to the interest which attaches to my case as being a typical case of aphemia, is the interest it acquires from the fact that the power of articulation, and consequently the power of speech, was regained under the influence of instruction. That mode of treatment does not seem to have been employed in Trousseau's case, and the patient recovered his speech perfectly in the course of a few weeks, in consequence doubtless of the restoration to health of the mechanism by which the mind 'incites the automatic act of speech.' And it was employed with only slight success in a case which Dr. Bastian quotes from Dr. Osborn. But Dr. Osborn's was not an uncomplicated case of the affection;

* 'British and Foreign Medico-Chirurgical Review,' Nos. 85 and 86.

moreover, I think that a perusal of it will show that it was only towards the close of the case, as recorded, that the proper method of instruction was hit upon, and how far it was then carried out and with what success does not appear. The fact is of course that the articulation of words in speech is a purely automatic phenomenon. The utterance of the appropriate words follows our thoughts without any attention being needed or paid to the complex movements by which their articulation is effected; indeed the bestowal of attention upon these movements is apt to interfere with their perfect performance. The child learns to speak (on the same plan that he learns everything else) not by first painfully mastering the elementary sounds of speech and then laboriously combining them into words, but by copying automatically the complex sounds—words and sentences—which he hears; and thus by degrees he acquires a language, without acquiring any knowledge of mechanical processes by which he effects its utterance, and doubtless in many cases without ever having the slightest suspicion that every shade of sound he evolves requires for its evolution a special and complex arrangement of a highly complicated apparatus. It is not difficult to understand how, to a person thus educated, an obstruction to the channel through which the mind, willing to express its thoughts in words, is accustomed to incite the automatic acts on which words depend, annuls their utterance. He wills to say a word, but the ganglionic centre which presides over the organs of articulation (used as organs of articulation), which has hitherto acted as his agent in this matter, and has had, so to speak, the sole management and control over it, fails to act for him; he is ignorant how otherwise to produce articulate sounds, and is dumb. You find that he can move his lips and tongue freely, and you tell him to repeat after you a short and easy word, it may be a simple letter; he again directs his agent to perform the necessary acts, but again there is no response, and to your surprise perhaps and even more to his own, his lips and tongue remain motionless and he is still dumb. And so, not appreciating his condition and believing himself to have lost the faculty of speech, he is likely to remain, unless either the obstructed channel be restored, or he be taught to speak through the intervention of some other agency. But the production of articulate sounds is the result of a mere mechanical arrangement of the parts concerned; and if the organs be placed in certain

positions and breath be then emitted through them, certain articulate sounds must necessarily be evolved. The aphemic patient hears and understands, and can read and write, and he can execute with his lips and tongue, and associated parts, all possible combinations of voluntary movements, and he can necessarily therefore, when instructed how to do it, arrange these organs in all the positions which are essential for the utterance of the various elementary sounds. He cannot say the words which stand for the letters *s*, *v*, *l*, and the like, for reasons which have been considered; but he can, if shown how, put his tongue and his lips into the positions for their utterance; and having put them into those positions, and being made to emit vocalised or unvocalised breath, cannot then fail to sound them. It was, as has been seen, thus that my patient learnt. He had been nine months entirely speechless, believed himself to be hopelessly dumb, if told to repeat a word had apparently no conception of how it was to be done, and stated in fact that a something which he could not explain seemed to prevent him; and he had made no advance whatever at the time when I first took him in hand towards the recovery of articulation. Yet at the very first lesson he was to his own astonishment and gratification made to utter articulate sounds which his ear recognised as articulate sounds. The first step having been gained everything else was, as might under the circumstances have been anticipated, comparatively easy. And no sooner had he learnt how to produce all the elementary articulate sounds, than the power of uttering words, the capability of speech, flashed upon him almost instantaneously, as it were by magic. It might be asked how it was that having forgotten how to speak, yet having the voluntary use of the organs which are employed in speech, he did not recover language as a child learns language. But to this I think it may be replied that adults don't acquire language intuitively as children acquire it; they don't begin by uttering odd combinations of sounds as substitutes for words and phrases; they begin with the elements and mount gradually upwards. The child's method of learning language was unnatural to him; besides which, as he could not utter the words which seemed to him on the tip of his tongue, restrained apparently by some mysterious influence, he came to the conclusion that he was mute, and on these grounds probably did not persist in making noises with his mouth which his ear would tell him were inarticulate, and in which he would doubtless fail to recognise the glimmerings of speech which they really contained.

I append the following notes of B.'s case which were given him in Singapore; for, though differing a little in some details from its early history as furnished by himself, they confirm its substantial truth.

He was admitted into the hospital at Singapore on March 20.

'*State on admission.*—Left leg paralysed. Is deaf and dumb. Complains of pain in the left leg, which is rather tender to the touch, though powerless; pain across the temples, extending to the vertex of the head. Is much depressed in spirits. Bowels confined.

'To have an enema. Ice to head. ℞ Liq. ammon. acet. ʒj., spt. æth. nit., ɱxv., mag. sulph. ʒj., aq. ad ℥j. Misce ft. mist. capiat secundis horis.

'March 22.—Feeling better; pains still in left leg; deafness continues; bowels moved; somewhat cheerful.

'To have the leg fomented and soap liniment frictions; to have 3 grains of quinine at noon, and 5 grains of carbonate of ammonia added to each dose of the mixture.

'27.—Expresses himself (in writing) to feel very well this morning; head feels easy, and the leg does not seem to pain so much. "I can also hear if you only speak loud; I feel as if there was something in my throat, a choking feeling."

'April 1.—Has for the past few days been having an application of the galvanic battery over left leg, back of neck and throat. This morning complains of head and leg paining him much; does not hear so well this morning; complains of the galvanic battery leaving a dim stupid sensation in his head, especially across the forehead.

'2.—Much the same, though the pains complained of have been relieved.

Mist. strych. ℥j. after breakfast and tiffin.

'5.—Feeling better this morning; head confused; throat painful; "able to move my leg a little easier, otherwise I feel stronger and livelier." Has continued to improve in left leg; gaining power, and not so painful. Hearing much improved; can hear the ordinary voice of any around him. General health good. Spirits cheerful. Still unable to articulate. A slight moan is all that can be uttered, but this causes pain in the head (vertex).

'22.—To discontinue the strychnine mixture, and to have potass. hypo-phosphat. ʒss., tinct. gent. ʒij., aq. ad ℥vj. Misce ft. mist. cap. ℥ss ter die.

'June 9.—B. has continued to improve; he is much

stronger and more cheerful, but is still unable to speak; any attempt at articulation causes pain in the top of the head. He has gained a little power in the voice, that is all. He has more strength in the left leg, and more control over it.

'He is now leaving for England, and this brief epitome of his case is given him to guide any medical officer into whose hands he may next come. He has also had general tonics, shower-baths, and counter-irritants, and stimulating frictions of the affected leg.

'(Signed) H. L. RANDELL,
'Colonial Surgeon, Straits Settlement, Singapore.'

XXII.—*Cases of Cardiac Disturbance in connection with Nephritis.* By SAMUEL WILKS, M.D. *Read March* 11, 1870.

ALTHOUGH there is very little allusion made in works of medicine to the remarkable disturbance which the heart undergoes in partial or complete arrest of the function of the kidneys, yet the phenomenon cannot have passed unobserved by the members of the Clinical Society. My own interest was awakened to the subject many years ago when holding a public appointment at the Surrey Dispensary, and in a paper which I wrote at that time on Bright's disease,* I referred to some cases of the kind I had met with in the practice of that institution. My experience of them has subsequently much increased, and during the last year I have seen many instances of the kind, in consequence, no doubt, of the prevailing epidemic of scarlatina, and of the oft-accompanying nephritis.

I need only mention a few examples, first of all alluding to those which many years ago first attracted my attention to the subject.

Case.—In a house near Guy's Hospital lived a woman with five children, and in the same house, but unknown to her, was a little girl suffering from scarlatina. These five children were attacked with slight sore-throat and general indis-

* Guy's 'Hospital Reports.' Series ii. vol. viii.

position, but of so trivial a nature that scarlatina was not suspected. Some short time afterwards they were all found to be affected with albuminuria, and whilst I was in attendance three of them were seized on three successive days with precisely the same symptoms—a sudden and most alarming dyspnœa and palpitation of the heart or cardiac apnœa, as it might with more propriety be called. I suspected in each case the onset of a pericarditis, or failing this, some other acute inflammation of the chest, but I never could discover, on repeated examination, any other physical signs than those of universal bronchial râles throughout the lungs. After a few days these children recovered without there being any trace of disease left behind. In the paper in which these cases are related I suggest that the attack may have been due to a sudden bronchitis, owing to the violence of the uræmic symptoms having alighted on the bronchial tubes instead of, as sometimes seen, on the brain, stomach, or intestines, or other organs. I do not, however, now hold to this explanation.

Case.—About a year ago I was summoned to go a few miles from town to see a lady who was thought to be dying. I found her sitting on a chair leaning forward so as to rest her arms and head on the side of the bed. She was gasping for breath and her pulse was proceeding at such a rate that it was impossible to count it. Her history was this:—Her children had had scarlatina, and she herself had had a sore-throat, but it was not satisfactorily determined that she had suffered from the complaint. When convalescent they all went to Brighton, but had not been there many days when this lady became very ill, and a medical man who was called in found that she had bloody albuminous urine. She at once returned home, and very shortly afterwards was seized with the alarming symptoms just named. She remained for four days and four nights sitting in a chair leaning her head on the lap of a nurse, and declaring that if she moved from this position she should die. I had therefore considerable difficulty in exploring the chest, but I could find no pericardial or other sound denoting any inflammatory process in the heart or other organ; the only abnormal sound was due to bronchial râles in the lungs. The heart was beating at the rate of about 160 per minute, and so urgent was the cardiac apnœa that it was thought during this period that any moment might be her last. She remained in this most precarious condition for about four

days and then gradually recovered. I have seen her lately and she is quite well.

Case.—I was attending lately, with Mr. Hoare of Dartford, a family of children who were suffering from scarlatina nephitris; one of these, a little boy, was progressing favourably when he was seized with great difficulty of breathing and palpitation. When I saw him he was sitting up in bed leaning forward and gasping for breath. His heart was beating most violently at 140 per minute. His distress was very considerable, and I suspected the onset of a pericarditis. On the following day his condition was much the same, and I then thought that the area of dulness over the heart was somewhat increased, but even if this were so it was not very well marked. He continued in a very precarious state for three days and then recovered.

Case.—Ann B., æt. 18, admitted under my care into Guy's Hospital, on September 28, 1869, in an apparently dying state. She was placed in bed and propped up by pillows in the upright position, so urgent was the orthopnœa. Her heart was running on at such a rate that it could not be counted, and her breathing was about sixty in a minute. No abnormal sound could be heard over the heart, but there was rhonchus throughout the chest. She soon afterwards passed some water which was albuminous besides containing blood and casts. On examining her skin it was observed to be rough, and her mistress said that about a fortnight before she had been unwell with a sore-throat. Two days before admission the urgent dyspnœa came on. She was ordered to be cupped between the shoulders, and a saline with antimony given every few hours. It was thought that she had obtained some relief, and therefore on the next day the cupping was repeated. The case was then handed over to Mr. Taylor, the house physician, who saw her several times during the night and day, and who was always momentarily expecting her death. He treated her according to circumstances, giving her brandy at intervals with medicine of different kinds. For several days she never lay down, the distress of breathing being so great, the pulse being mostly 154, and the respiration 56 per minute. The heart was repeatedly examined, but no abnormal sound could ever be detected. This state of things lasted for a fortnight, and I then ordered her some tincture of aconite every four hours, in order to see if any quieting effect would be produced on the heart, but as no result followed after three days it was dis-

continued. After about a fortnight the urgent symptoms disappeared and the heart becoming quieter a careful examination was again made, but no bruit could be discovered. For some personal reason she left the hospital, and it was said did not survive long afterwards.

There appears to be no reason to connect these symptoms with scarlatinal nephritis, as the following case will show:—

Case.—About a month ago I was called to see a gentleman who had been seized with such an attack as above described. He was about fifty years of age, and having been much out in the bad weather, had been ailing for a day or two with what was called a cold, when one evening he was seized rather suddenly with most urgent dyspnœa, or rather breathlessness, accompanied by palpitation of the heart. The doctor, who quickly saw him, found him suffering just as would a patient with advanced heart-disease, where the valves are impaired or the heart dilated and weak. The history, however, precluded this opinion, and at the same time there were no abnormal sounds. It was then found that the urine was scanty, thick, bloody, and albuminous. He had indeed acute nephritis. The patient had two more similar attacks of suffocative breathing and then quickly recovered. I examined him again to-day, found the heart quite healthy, but the urine albuminous.

It may then be further said that these symptoms are not necessarily associated with acute renal disease, as they may be observed in chronic Bright's disease when any circumstance occurs to temporarily aggravate the impaired functions of the kidney. I will mention only one case in illustration:—

Case.—A gentleman had for some time been out of health and had frequently been attacked in the night with fits of bad breathing. On one of these occasions I was sent for, and arriving before the usual medical attendant proceeded to examine his urine, I found it highly albuminous and from its character generally, combined with the history which the patient gave me, I felt no doubt that he was the subject of confirmed Bright's disease. I recommended a jalap powder, and had the satisfaction of learning that it had been of more avail in relieving the paroxysm than all the ether and brandy which had been administered on previous occasions. So convinced, however, were the patient, his friends, and the doctor that he must be suffering from his chest that one of the most eminent men in London, who had devoted himself

to the study of thoracic disease, was consulted about his case, and he, after a careful examination of his lungs and heart, failed to discover the cause of the paroxysms therein.

I need scarcely allude to lesser symptoms of cardiac trouble or dyspnœa occurring in chronic renal affections, as cases exemplifying these might be mentioned without number. It must be a matter of almost daily experience with most medical men to be consulted about oppression of breathing when no disease is to be detected in either lungs or heart, but the urine is found to be albuminous and the patient discovered to be a sufferer from Bright's disease.

Now we may ask the question, What is the cause of this sudden paroxysm of distress of breathing? In the first place I think it may be satisfactorily affirmed that the lungs are not the organs at fault; the attack does not resemble one of asthma, and the rhonchus in the chest may be satisfactorily accounted for as a result of the impeded circulation. It would seem clear from the palpitation and the attendant symptoms that the heart is the organ which is disturbed. How and why then is it affected? In chronic Bright's disease some weight must be attached to the fact of the frequency of hypertrophy of the left ventricle, and even to the further enlargement leading to impairment of the mechanism of the organ. In such cases therefore there might be a probable explanation of the symptoms in an organic disturbance of the heart itself. In acute nephritis, however, no such explanation will hold, and therefore the question is limited to the supposition of a functional disturbance or an inflammatory process which is not made manifest by the ordinary signs. Knowing that it is not unusual to meet with a pericarditis or endocarditis in the course of scarlatina or albuminuria, and knowing also that it is not an uncommon circumstance for a sufferer from valvular disease to trace his illness to the former of these affections, I have always been on the watch in such instances as I have described, for the occurrence of an acute pericarditis, or at least a pericardial effusion. Such, however, I have not met with, although I am quite open to the conviction that such might sometimes have occurred, seeing that in the case of endocarditis at least the results might not have been perceptible until many weeks afterwards. In the majority of cases I have no doubt that the disturbance of the heart is functional and is produced through its nerves by the poisoned blood; in fact the symptom is one result of uræmia. It is known that in the so-called uræmic in-

toxication one organ rather than another may be selected to receive the violence of its effects, and that the nervous system is especially liable to be affected. Thus not only coma and convulsions may be observed, but sometimes a remarkable spasm of the glottis, which has been considered to denote the existence of œdema and has even prompted the operation of tracheotomy. This symptom has so much resembled what has been observed in cases of pressure on the recurrent laryngeal nerve, that it might be surmised that the stridulous breathing was due rather to a temporary paralysis of these nerves. If this were true, we have only to transfer the paralysis to the cardiac branches of the pneumogastric in order to produce the effect on the heart described, for according to physiologists whilst the sympathetic nerve stimulates the heart to action, the pneumogastric controls and retards it; so that should the latter be paralysed the organ would run riot until at last it ceased to beat altogether. This theory is merely thrown out as a surmise. I would only insist that the peculiar disturbance of the heart's action which I have been describing is of nervous origin and is a symptom of uræmia.

As regards the treatment of such cases I have not much to offer, more than to state my conviction that that treatment is best which is directed against the uræmic state. In the cases just related various plans were already in adoption when I was consulted, but I cannot say that any particular remedy struck me as of peculiar efficacy. In one digitalis was given, and I permitted its continuance, although I then stated that my experience showed this drug to be valueless in such cases as regards any power it possessed in influencing the heart. In my hospital case I recommended a purge, saline with antimony, and cupping, a method which apparently gave temporary relief. In this case subsequently, as in all the others, stimulants were freely given as the medical attendant was always in fear of sudden dissolution. As before said, however, I regard the cases described as instances of blood-poisoning, and I consider the best treatment is that which experience has already found efficacious in the removal of symptoms dependent on the condition known as uræmia.

XXIII.—*On a Case of Inguinal Hydrocele.* By C. Holthouse. *Read March* 11, 1870.

It is well known that one of the situations in which a testicle may lodge, which has failed to reach the scrotum, is just outside the inguinal canal, between the aponeurosis of the external oblique muscle and the integuments. If its investing sheath of peritoneum—the vaginal process—should remain open above, there will be a pouch ready formed for the reception of a hernia, and one of the varieties of congenital rupture may result. On the other hand, should this serous sac become closed above, any of the following conditions may occur. Firstly, from a blow, or other injury to the testis, inflammation may be set up in that organ, accompanied with swelling and pain, and some of the symptoms of strangulated hernia; or secondly, from a like cause, the inflammation may affect chiefly the serous pouch in which the testicle is lodged, and fluid of an inflammatory nature be poured out, constituting an acute hydrocele; or, should the testis be equally implicated, hydro-sarcocele. Or, lastly, from pressure of the pad of a truss, passive effusion, or chronic hydrocele of the sac may ensue.

An example of acute inguinal hydrocele is recorded by Mr. Hulke;* and a case of chronic hydrocele of the groin was brought before the notice of the Pathological Society by Mr. Curling in 1858, and is published in the ninth volume of their 'Transactions.' The following case is of the latter description, and possesses the additional interest of being accompanied by symptoms which led to the belief that it was a strangulated hernia.

H. B., aged 48, was admitted into Henry Hoare ward, early on the morning of March 19, 1861, with a painful tumour in the right groin (for which he was wearing a truss) and great tenderness and distension of the abdomen. The tumour, he said, had become much larger since the 16th; and on the day before his admission he had had vomiting. His pulse was feeble, and there was considerable prostration. The house surgeon, believing the case to be one of strangulated hernia, placed the patient in a warm bath, and used the taxis; but the swelling not yielding to these means, I was sent for. Hearing that the taxis had been tried without success, and that the symptoms were urgent, I gave directions that every-

* 'Lancet,' February 12, 1860.

thing should be got ready for operating; and, on my arrival, the patient had already been taken into the operating theatre and the inhalation of chloroform commenced. As soon as I touched the tumour, however, I discovered that it was not a hernia but a hydrocele. The patient was, therefore, carried to bed; and, on the following day, this history was obtained. Twenty-five years ago, whilst lifting a heavy weight, and giving a sudden jerk to raise it a little higher, he felt something give in his right groin, with great pain. He continued his work, however, and did not examine the part till night, when he found a hard lump, tender on pressure, and as big as a small marble. For five weeks afterwards he had some pain in the 'lump,' but it underwent no change in size or consistency. Twelve years ago he was persuaded by one of his mates to wear a truss; and he has continued to wear one ever since. From the first appearance of the tumour, he has been subject to occasional attacks of pain in it, attended with an increase of its size and hardness. He thinks that it has attained its present size and become soft within the last five years only; but he is not certain on this point. He is not an intelligent man, and was not aware that he had only one testicle in the scrotum. On further questioning him, it appeared that he had been out of work for some weeks, and living very miserably; and, at the time of his admission, was suffering from diarrhœa; hence the tympanitis and abdominal pain, which was mistaken for peritonitis. A warm bed, and a single dose of 20 grs. of the confection of opium, at once relieved him of all his symptoms; and, hearing of some work, he left the hospital a few days afterwards, perfectly well, and unwilling to have anything done to the tumour.

The situation and character of the tumour. — It occupied the right inguinal region, and was situated between the skin and the aponeurosis of the external oblique, extending into the upper part of the scrotum and the inguinal canal. It was oblong in shape and oblique in direction, and resembled a large femoral hernia. It was soft and fluctuating, and its contents could be readily pressed from one part of the swelling to another. On percussion it was dull, and no impulse was communicated to it when the patient coughed. The scrotum on that side was small, and contained no testicle, but a small hard body, supposed to be that organ, could be felt in the inguinal canal.

XXIV.—*Note of Cases of Amputation in which Ligatures have been used.* By GEORGE W. CALLENDER. *Read March* 11, 1870.

WHEN the use of torsion for the arrest of bleeding from arteries was under discussion, I mentioned that secondary hæmorrhage after the use of the ligature was an extremely rare accident at St. Bartholomew's. I now bring before the Society the facts upon which I relied in making this statement.

The attention of the profession has been directed from time to time to the favourable results which follow the use of acupressure or of torsion; and it has been argued (1) that the risk of secondary hæmorrhage is less than when ligatures are employed; and (2) that patients recover better (more surely and more quickly) than when ligature threads are left in the wounds. At present the treatment by torsion, or by acupressure, has been tested chiefly, if not altogether, in hospitals; its results, therefore, may be fairly contrasted with those which follow the use of the ligature in our amputations in St. Bartholomew's.

1. With reference to secondary hæmorrhage.

I have elsewhere published the results of 358 amputations performed in the hospital.* Of this number 74 died, and of these 5 died from secondary bleeding; a sixth case I have reported as dying from purpura and blood-oozing, but this clearly belongs to a class distinct from the other five. These cases extend over a period of eleven years (from January, 1853, to October, 1863).

From my notes of all the amputations performed by Mr. Paget and by myself, since our appointment as surgeon and assistant-surgeon, it appears that in a total number of 108 cases, the cases of secondary bleeding were only 2, and of these 1 ended fatally.

The accompanying figures, for which I am indebted to Mr. Bloxam, show the results of amputations during the year 1869:—

* 'Med. Chir. Transactions,' vol xlvii.

Results of the Amputations at the Thigh, Leg, Arm, and Forearm, in St. Bartholomew's Hospital, from January 1, 1869, *to January* 1, 1870.

Primary or for Injury								Secondary or for Disease							
Thigh		Leg		Arm		Forearm		Thigh		Leg		Arm		Forearm	
Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
2	1	2	0	1	0	...	...	19	2	18	3	2	1	2	0

Total number of cases, 46;
Total number of deaths, 7;
or 1 in every 6·5 died; or 15·2 in every 100.
Cases of secondary hæmorrhage, 0.

Adding to the first-named 358 cases the amputations referred to, and which have been treated since October, 1863, we have 480 operations, with 6 deaths from secondary hæmorrhage, or 1 in 80, or 1·2 per 100.

In all Mr. Paget's experience at the hospital, to which my own is added (which of course is less considerable), only twice has secondary bleeding occurred. Of the two cases, at one of which I did not assist, Mr. Paget said to me immediately after the operation, he feared there would be trouble with the arteries, as the assistant had tied them very tightly. The ligature cut through the femoral, and there was severe bleeding on the fifth day. In the second case, the patient recovered after ligature of the common femoral.

2. With reference to the recovery of the patients.

During the year 1869, of 46 cases of amputation at St. Bartholomew's, including 21 thigh and 20 leg amputations, in all of which, with one exception, the main arteries were ligatured, 7 died; a result which will compare favourably with any return of amputations in which acupressure or torsion has been employed.

In the face of these figures I consider myself justified in stating that secondary bleeding is a comparatively rare oc-

currence after tying main arteries. It was stated in discussion before the Society that arteries might be too much twisted in practising torsion, and that atheromatous arteries would not bear so much twisting as healthy vessels; and so, I think, some discredit has unfairly fallen upon the ligature from the way in which, perhaps from over-familiarity, it is sometimes applied; for instance, when it is so tightly tied as all but to cut through the vessel.

Tying an artery requires just as much care as, but no more than, twisting or acupressing it.

XXV.—*Cases of Imperforate Rectum, treated by Operation.* By Christopher Heath. *Read March* 25, 1870.

TWO years since, I had occasion, within a short time, to operate upon three cases of congenital malformation of the rectum, and I have purposely delayed placing them upon record until the results in two of the cases which survived had been tested by time.

Case I.

March 7, 1868.—A male child, 3 days old, was brought among the out-patients at University College Hospital. The anus was well formed, but within it was a cul-de-sac half-an-inch in depth. The abdomen was much distended, and the child in a very feeble state; and as I was unable to detect any fluctuation or impulse in the cul-de-sac upon pressure being made on the abdomen, I feared to plunge a trochar through what I believed to be more than a simple septum in the intestine. I therefore broke down the septum with the finger, and about an inch from the surface felt the distended rectum lying against the sacrum. This I secured with forceps and opened; and then, drawing the bowel down to the anus, attached it with sutures. Meconium passed freely. The child was sent home to its mother, with directions that it should be brought again in two days; but as it

never re-appeared, and was at the time in a very feeble condition, I presume that it sank.

Case II.

March 25, 1868.—I was asked by a medical friend to visit his male child, 2 days old, in whom there was no anus. The malformation had not been noticed at birth, and it was only on proceeding to administer an enema on account of the non-appearance of meconium that the father discovered the absence of the anus. The child, though at full term, was very small, and the only evidence of anus it possessed was a small follicle, into which a probe passed for the eighth of an inch without result. The child being held in the lithotomy position, I cut through the skin in the situation of the anus without discovering the bowel, but after dissecting through half an inch of tissue I was fortunate enough to open it. I was able to pass a No. 14 urethra bougie readily, and the meconium came away in good quantity. I did not attempt to draw the bowel down to the skin, as, from the density of the intervening structure, I considered this to be impossible, and the child was too weak to bear any further interference. Very little blood was lost in the operation.

On the following day (26th) I saw the child with Dr. West, when it was jaundiced and feeble, and the abdomen was considerably distended and hard, though meconium had passed in good quantity. A poultice was ordered to the belly, and the child was carefully fed, and by the evening had rallied considerably.

The next day (27th), Dr. West being anxious that if possible the bowel should be brought down, I made an attempt to do this, but could not get hold of any edge, the bowel being apparently attached to the thick septum I had cut through. I passed No. 12 urethra bougie.

31.—The father has passed No. 12 bougie daily. There is no contraction apparent, and the wound is granulating. I passed No. 1 rectum bougie without difficulty.

By May 12 the child had grown and thriven, and a bougie was passed on alternate days. I had a conical rectum bougie made, which the nurse used daily.

On July 6, I found the child much grown and well nourished. The anus looked healthy, and the mucous membrane of the bowel seemed to have become continuous with it. The finger could be passed readily, and without pain.

From this time the child has thriven and grown, and, except being perhaps a little backward, is in no respect different from other children. There has been occasional difficulty from accumulation of fæces in the colon, but this has been overcome with medicine. The conical bougie is still passed occasionally, but there is apparently no tendency to contraction. The fæces are retained for many hours at a time, but the child appears to have no warning when the bowels are going to act, and has then no power of controlling the passage of the fæces.

Case III.

A female child, aged 13 months, was brought to me at University College Hospital, in October 1868, with no anus, but with an opening from the bowel into the posterior wall of the vagina about an inch from the lower end. The abdomen was considerably distended, and the child in constant distress from the over-distension, due to the fact that the opening into the vagina was not larger than a No. 8 bougie. An operation for the formation of an anus in the proper situation had been performed by another surgeon nine days after birth, and fæces had passed through the wound, which, however, soon closed, notwithstanding the use of a bougie. Having administered chloroform, I passed a director through the vaginal opening, and made the point press against the perinæum, and then cut upon it, making an opening in the site of the scar of the former operation without difficulty.

Three days after, I found that fæces in small quantity had passed through the artificial opening, and I provided the mother with a conical bougie to use regularly. The child was brought at intervals for six weeks, but its progress was not satisfactory, the fæces never passing freely, and each evacuation being accompanied with great pain and straining, so that the child's health was daily deteriorating. The bougie could not be passed far into the bowel. Under these circumstances, in December 1868, I determined to attempt some further alleviation of the child's condition, and, in order to gain room for exploration, thought it best to sacrifice the perinæum. This was done under chloroform, and I was then able to dissect into, and fully open the bowel, which had evidently not been done before, a large quantity of fæces coming away immediately, and the greatest relief following the operation. The child recovered perfectly from the opera-

tion, and no difficulty was now experienced in passing the bougie. The mother used it regularly, and the child grew and became fat. She was able to hold her motions fairly, except when very loose, and I had hoped to produce her before the Society in a very satisfactory condition. Unfortunately, the child died somewhat suddenly with symptoms of enteritis on February 25, 1870. I was informed of this fact on the following day, and had the opportunity of making a post-mortem examination. I found the rectum and sigmoid flexure of the colon enormously dilated, but not loaded with fæces, and on examining the preparation it will be seen that the opening into the vagina is amply sufficient for the passage of fæces, and the distension is no doubt a remnant of the condition brought about by the obstruction existing in early life.

These cases are examples of three of the several varieties of malformation which is met with in the lower bowel, of which Mr. Curling * enumerates five, and Bodenhamer nine species. The first, where an anus existed, belongs to the most common class, embracing 31 of Mr. Curling's 100 collected cases. If the division had been thinner, in fact merely a membrane, I should not have hesitated to puncture it with a trochar, and afterwards dilate the opening with a piece of laminaria, as I have seen Mr. Erichsen do most successfully; but, as the event proved, the anus and the rectum each terminated in a cul-de-sac, and it was only by cutting or breaking down the anal one that I was enabled to reach the blind end of the rectum and to draw it down to the anus. I must confess myself very loth to plunge a trochar in merely for exploration unless the fluctuation of fæcal matter is distinctly felt, and I think Mr. Curling's personal experience shows that dissection is better than puncture; for of four cases in which an anus existed, in two the deep puncture was unsuccessful, in a third the puncture reached the rectum, but no meconium escaped, whilst in the fourth the bowel was reached by incision, drawn down and attached to the skin, as so strongly recommended by M. Amussat.

The second case, in which the anus and lower part of the bowel were wanting, presents a less common variety, only 26 cases in Mr. Curling's table belonging to it. The difficulties of this class of cases are greater, and are increased by the want of diagnosis. Here, even more than in the

* 'Medico-Chirurgical Trans.,' 1860.

former class, a puncture is to be deprecated, for nothing but a careful dissection offers any chance of relieving the patient. I was fortunate enough to find the bowel within a moderate distance of the skin, and though unable to draw it down, as I should much have preferred to have done, nature seems to have established a very satisfactory continuity of mucous membrane over the cut surface, and there has been really less difficulty in maintaining the passage than I anticipated. The rarity of success in the operation may be estimated from the fact that of 26 instances in Mr. Curling's table, in only 11 was the gut reached, and of these only 3 lived more than a few days.

The third case was an instance of a still rarer form, Mr. Curling's table, already referred to, containing but 11 cases of the kind; but of these the greater number were successfully operated upon, some not till even of greater age than my little patient. The closure of the artificial anus is by no means uncommon in these cases, and the division of the septum has been resorted to in more than one case by other surgeons. A case of Dr. Rhea Barton's, recorded by Bodenhamer (Case 197), is almost precisely similar to my own in every respect, except that that surgeon was fortunate enough to procure healing of the vaginal wall after the establishment of the rectum, which was not the case in my little patient, though I hoped when the parts had developed by age to be able to remedy the deformity. The non-success of the two attempts to relieve by cutting upon a director passed through the vaginal orifice is accounted for, I think, by the presumption that the rectum really terminated high up, and was connected with the vagina only by a narrow portion through which no effectual relief could be obtained.

Since this paper was sent in to the Secretary of the Society I have had a fourth case under my care, a male child, sent to University College Hospital on March 2, by Dr. Hay of the Caledonian Road. The child was 2 days old, and had a well-formed anus terminating in a cul-de-sac. In examining this with the finger I fancied I felt a small opening at its extremity, and endeavoured to insinuate the finger into it. The tissue, however, yielded to the pressure, and I failed to reach the bowel. A careful examination with the finger, which could now be readily carried up into the pelvis, failed to discover a distended bowel, nor were my colleagues who made the attempt more successful than myself. Under these

circumstances I preferred to postpone further interference for 24 hours, in the hope that the bowel might become more distended; and on the following day I succeeded in opening it close above the anus. Meconium passed in good quantity, but the child died the same night. On post-mortem examination I found general peritonitis, and on passing the finger into the anus found that it entered the recto-vesical pouch of peritoneum. The bowel appeared to be natural close down to the opening through which meconium had escaped, and I believe, therefore, that had the rectum been so distended as to have justified the use of the trochar, this case might probably have been saved.

XXVI.—*Case of True Keloid of Alibert.* By Dyce Duckworth, M.D. *Read March* 25, 1870.

A GENTLEMAN residing near Manchester requested me, two years ago, to examine the front of his chest, which had been the seat of a curious growth for many years. On his stripping off his clothes, I at once recognised a well-marked case of the disease known as Alibert's keloid. I saw him again lately, and, knowing that these cases were somewhat rare, I took a full history, which was readily and intelligently given. The account is as follows:—

J. W. L., æt. 65, is a spare and rather pale-faced man; he now enjoys good health, but has had the following illnesses, viz., variola, forty-three years ago, rheumatic fever, and some severe dyspepsia, the latter about ten years ago. The face is not marked with small-pox scars. In 1834, or thirty-six years ago, he first noticed a small red pimple, not larger than a pin's head, about the centre of the breast, not painful, but always from the first with a tendency to itch, especially when warm. Up to 1850 (sixteen years' growth), it was not larger than a horse-bean. Since that period it has enlarged more rapidly, and still continues to spread in various directions. The patient describes the growth to have increased as much in the last ten as in the previous fifteen

years. It now occupies the lowest part of the sternal region, and overlies the xiphoid cartilage. It measures 2¼ inches across, 1¾ inch in its greatest vertical diameter, and is raised about a quarter of an inch above the surrounding healthy skin. It is generally of a dusky pink tint, and is semi-elastic and firm to the touch. Its surface and margins may be more minutely described as follows. About the centre of the mass a paler cicatrix-like portion is seen. This is less raised than the margins, which are of darker hue and firmer to the touch. A claw-like portion extends from the upper aspect into sound skin. The right border is the most raised, and is rougher and slightly tuberous. On the summits of the small tubera the tint becomes somewhat yellow, or rather of the colour of scammony. The left margin is less raised, and is bevelled off towards sound skin. The inferior aspect of the growth is sharply defined, and no extension has ever occurred at this part. The patient has especially observed this. There is also seen a deep sulcus in the centre of this inferior margin, leading up to sound integument over the xiphoid cartilage. The two lateral margins may be described as terminating in two claw-like processes approaching the mesial line at, and assisting to form, the inferior margin. Closer examination shows that the mass extends by small processes from the sides and upper margin. According to the patient's statement, sometimes one, and sometimes another, is in an active condition. After the extension-growth ceases, the part, or process, is noticed to become denser and more raised. There is a slight brown pigmentation of the skin at one point above the superior aspect of the tumour. No capillary or other blood-vessels are visible on or around the mass, either with the naked eye or a lense.

In 1856, the patient walked ten miles, carrying a carpet-bag slung across his shoulders. He afterwards felt a little galled below the left collar-bone. A fortnight subsequently he noticed a red mark, like a scratch. This remained and became thicker. In two years' time there was distinct enlargement, and there are now two flattened dusky red patches; one lying over the second left costal cartilage, from which a thickened band extends, apparently in the derma, to the other smaller patch situate about an inch outwardly. There are no other keloid growths elsewhere.

The sensibility of the principal mass is increased, but, if not irritated by heat or prolonged pressure, it bears firm

handling with impunity. Heat increases the sensibility, and the patient alleges that it also deepens its colour.* He states that he cannot sit long writing at a desk, or button up tightly in front of his chest, or bear the weight of the bedclothes, without discomfort from stinging sensations; and these are aggravated whenever the temperature is exalted from any cause. Firm pressure around, but especially below the mass, entirely removes these uneasy feelings. The pain and discomfort have increased with the size of the growth. No perspiration occurs on its surface; even when the body is bathed in sweat, it remains smooth and shining. For comfort in bed, the patient always lies on his left side.

There are no cicatrices around or near the tumour, not even variola marks. There is no history of a blow or injury of any kind to the part originally, nor has a blister ever been applied. There are no enlarged glands anywhere. The various cavities and viscera are quite healthy. The urine is free from sugar and albumen.

Regarding family history and influences of heredity, are these facts:—The patient's father and several paternal aunts died of phthisis; there is no history of cancer or other morbid growths in the family.

No treatment has been employed beyond the application of zinc ointment occasionally. This was found to be less soothing than simple cold cream. Perhaps most comfort was derived from daily ablution with soap, by means of a soft, long-haired brush, which prevented the accumulation of sebaceous secretion and dust in the irregular surfaces and margins of the growth. The employment of a weak lead lotion with dilute hydrocyanic acid also afforded very marked relief when the irritation was severe.

I have here described, as I believe, a typical case of the true keloid (or, more correctly perhaps, cheloid) of Alibert. This form of cutaneous disease is now acknowledged by the best authorities to be wholly distinct as to its origin, course, intimate nature, and termination, from the affection called by a similar name, and which perhaps owns a different derivation, known as the keloid of Addison, or, as Dr. Fagge proposes to

* The patient has recently sent me the following account:—'I have not noticed that any sort of weather affects the growth except summer heat. Any circumstances which induce perspiration bring on stinging sensations with increase of colour. These feelings are not continuous, for if I can remove pressure of clothing, or throw off the bedclothes, they go away at once.'

term it, circumscribed scleriasis.* The interesting points in this case are, that it presents many of the characters of true keloid already well described by Alibert,† Addison,‡ and Erasmus Wilson.§ So far as I can learn, there is no recorded instance where the affection has lasted so long as in this case. The tumour has in no way affected the general health. It adds one more to the examples of the disease as occurring in the male sex, and situated over the sternal region; a locality affected, it would seem, in nearly one half of the recorded cases. It will be seen from the model that there is no tendency to recovery in any part of the surface affected. Peripheral extensions occur, and these new processes ultimately become consolidated in the general mass. There is not, and never has been, any tendency to ulceration in the growth.

As to the perverted sensations experienced, it is worthy of note that in one case of this affection (in a girl, æt. 16, who suffered pricking pains on pressing the growth), where the mass was removed, and the disease reappeared in the cicatrix, the late Mr. Quekett found in the specimen large branches of nerves.‖

In the foregoing notes I have done no more than contribute some carefully ascertained facts, which I believe to be of value chiefly because the subject of the affection was so intelligent a person, and was so well able to detail the course and symptoms of his malady.

Appendix to the Case.

Since recording the foregoing notes, Mr. Jonathan Hutchinson has expressed the opinion that Alibert's keloid is a disease of scars and not of skin.¶ He thus seems to ignore Alibert's distinction into true and spurious or cicatrix-keloid. I think my case may be fairly taken to exemplify one of the former class, and for several reasons. Thus, there was no history whatever of extraordinary irritation at the part affected. The patient could not be sure if there was a small-

* 'Guy's Hospital Reports,' 1867. Series iii. vol. xiii., and vol. xv., 1870.
† 'Monographie des Dermatoses.' Édit. ii. p. 459. Paris, 1835.
‡ 'Roy. Med.-Chir. Soc. Lond. Trans.' vol. xxxvii. p. 28.
§ 'Diseases of the Skin, and Portraits of Diseases of the Skin.'
‖ Vide Catalogue of Models of Skin Diseases, Guy's Hospital—'Keloid.'
¶ 'Brit. Med. Journal,' p. 284. March 19, 1870.

pox scar originally where the disease commenced. However this may have been, the first speck of keloid only appeared seven years after the attack of variola.

I fully agree with Mr. Hutchinson and others as to the constitutional nature of this disease. That local causes, other than scars, may determine these growths in one predisposed, my case proves, as in the instance of the small infra-clavicular tumours. I think, moreover, that the fact of this affection so often attacking a definite region, that of the sternal integument, is in favour of there being a true or spontaneous keloid.

I am inclined, indeed, to believe that some cicatrices (especially those of bad burns) take on a temporary keloid growth, which alters in course of time, and may eventually disappear. Doubtless any cicatrix is prone to become keloid in a person specially predisposed. Dr. Warren's* and other cases prove this. It will be found, I think, that most cases of false or cicatricial keloid occur at no long distance of time after the original injury. Indeed, the so-called 'green' or pliable cicatrices after burns much resemble keloid growths in parts; and in most cases the change, when it occurs, takes place after a period of months rather than years. Thus in my case, and in one of Dr. Addison's,† small-pox occurred many years before the growths appeared, but none of the cicatrices took on this action. Again, in some cases unaffected scars are met with in persons suffering from true keloid.‡ In the case Mr. Hutchinson alludes to,§ there were active cicatrices of scrofulous ulcers undergoing keloid change. It is to be observed, further, that true keloid growths are singularly free from ulceration, while, according to Mr. Paget,‖ keloid scars 'are more than common scars liable to be sore and to ulcerate.' Dr. Addison,¶ however, remarked that 'cicatrix-keloid is sometimes altogether painless.'** Mr. Paget states, further, that 'when these growths are increasing and vascular, they are usually attended with a sensation of heat and irritation, but in their later states they are not more sensitive than common scars.' (Allusion to the active and vascular state of these tumours is made in contradistinction to

* 'Surgical Observations on Tumours.' By J. C. Warren, M.D., Boston. English edit. p. 45. (1838.) Vide Dr. Addison's second case, loc. cit.
† Op. cit. Case I. p. 33. ‡ Ibid. § Loc. cit. p. 284.
‖ Holmes's 'System of Surgery.' Edit. i. vol. i. p. 614.
¶ Op. cit. p. 31. ** Loc. cit.

a subsequent stage, when they sometimes become of the same colour as the surrounding healthy skin, or even assume a paler tint, as in the white keloid patches mentioned by Hutchinson, and seen sometimes in parts of a true keloid growth.*) Now the case is very different with true keloid, for the pain and annoyance increase with the size of the tumours.

My case affords an example of true keloid in an elderly man, and with a history of thirty-six years' growth, the longest ever recorded, in contrast with Mr. Hutchinson's assertion, that the disease is seldom met with in adult or elderly persons, excepting with a short history.

XXVII.—*On a Fatal Case of Epileptic Stupor.* By C. Handfield Jones, M.B. *Read March* 25, 1870.

Summary. — Profound stupor and unconsciousness; bedsores; partial recovery; relapse; formation of erythematous patches and bullæ; history of epileptic mania; death autopsy.

Elizabeth B., æt. 27, admitted into St. Mary's Hospital, December 31, 1869. A rather short, broad-made female, married seven years. Was taken ill December 21; lost her speech, and was quite insensible till 24th, when her mother first heard her call. She does not seem to have been convulsed; her mother saw her almost immediately after she was found to be ill, which was, I believe, in the early morning. Since the 24th she has remained stuporous, asking for nothing, and taking only what is given to her. She can move both hands, can put a piece of bread in her mouth, but has not strength to take a cup of tea herself. Has less power in her legs than in her arms. She can move both arms and legs pretty well, and put out her tongue straight. She lies at present very quiet; on being pressed, says in a low voice that nothing is the matter with her. Respiration not stertorous. Pulse 102, weakish. Temperature 97·52° F. Pupils equally active. No

* Vide, for example, Wilson's plate of Keloides in his Atlas, and the original cast of the case in the Museum of the Royal College of Surgeons.

spots on abdomen. Urine full coloured, sp. gr. 1025, not albuminous, acid. Extensive patches of gangrene of skin on both nates, from the irritation of the urinary and fæcal evacuations, which are both passed in bed. Has never ailed before (as we were told), except to some extent with rheumatism. Her face looks bloated and puffed, and she has a most bewildered puzzled aspect. No children, no miscarriages. Yesterday she seemed to have pain in head; has not to-day. Broth diet; beef-tea; spt. æth. sulph. co. ʒss. + dec. cinch. ʒj. ter die.

Jan. 1, 1870.—Is decidedly more conscious to-day. Temperature 100° F. Respirations 20. Pulse very weak. Bowels not open. Port 4 oz.

4.—Is more conscious; asks sometimes for the bed-pan. Breath very offensive; gums red and inflamed. Tongue coated. Temperature 99·5° F. Answers questions very slowly. Knew her mother yesterday. Pulse of fair force, 120. Wine 6 oz. Tannin to gums. Condy's fluid as a mouth wash.

7.—On 5th was much more conscious; did not soil the bed. To-day is still very dull and reluctant to speak; still passes occasionally her evacuations under her. Gums continue much congested; the lower most, and the mucous membrane excoriated. Sores on nates are scarce healing at all. Charcoal poultice, and carbolic acid lotion. Pulse 114; weak. Mist. quinæ ʒj. + liq. ferri. muriat. ♏ 20, quater die.

10.—Appetite very good; brain seems more lively; but she is still very apt to soil the bed.

12.—Is more dull and stupid the last two days, passing all her evacuations under her; answers very slowly; pupils equal; tongue natural. Pulse 104, very weak. Temperature 100·4° F. Ammon. carb. gr. v. + tr. cinchon. ʒj. + dec. cinchon. ʒj. quater die.

13.—Pulse 114, regular, rather sharp. Temperature 39·2° (102·5°) F. Passes urine freely. Bowels confined; opened by enema yesterday. Is much less lively than she was some days ago, but still answers questions to some extent, and recognises her friends. Has had some pain in head during the last three days. This morning had trembling of the whole body and limbs for some short time after she was cleaned and her dress changed. The quantity of uric acid in the urine of 6th was very small, scarcely enough to weigh. Vini colchici ♏ x. + pot. iod. gr. ij. + aq. Cass. ʒj. quater die.

14.—Pulse very feeble, not to be easily counted; feet cold,

head hot; a blister which has been applied to the head has not risen. A bulla has formed just above the right knee at the inside of the thigh, where it has been in contact with the left knee.

15.—Medicine omitted last night, and wine increased to 6 oz. Calomel gr. ¼ o. h., ol. crotonis ♏ ½ + pil. aloes c̄ sapon. gr. iv. statim.

16.—Her state is the same, except that a bulla as large as one-third of a moderate-sized orange full of fibrinous fluid has formed at the sole of the left foot, and another smaller at the heel, which has collapsed, but has contained bloody serum; the date of the appearance of this last is rather uncertain. Pulse 120. Temperature 39° (102·2°) F. Bowels not open with oil.

17.—The bowels were not moved with ol. croton. ♏j. until a turpentine enema was administered. Calomel omitted. State the same. Does not take food well. Temperature 100·9° F. Pulse 138, more open and developed; skin warmer. No fresh bullæ.

18.—Pulse distinct, 125; very silent and dull. Several red patches have appeared on the trunk, not forming vesications. Her limbs have been decidedly rigid this morning, and her trunk as well. She does not move much, but uses her left arm. Urine abundant. Large sloughs have separated from the sores or nates; the deep wounds look pretty healthy.

20.—Pulse 111; one beat running into the next. Temperature 99·32° F. On the chest and sides, and left back, there are seven or eight large red patches of well-defined erythema, like patches of limited superficial erysipelas; they appear and fade again; they have existed now in successive crops about three days. Swallows better. Bowels not open.

25.—Has several more bullæ on her legs, the margins of which are surrounded by a red line. She refuses now to swallow her food, holds it in her mouth, but swallows her wine and medicine. Died soon after.

Post-mortem.—About four days after death. Veins on the outer side of dura mater very congested. A good deal of fluid under dura mater, i.e. in arachnoid. A large amount of fluid in right, and more in left ventricle. These cavities were filled, but not distended; their walls were not softened; the fluid was clear, contained no flakes. Some fluid at base of brain; no lymph effused. Grey matter of hemispheres (convolutions) in particularly small amount. This was especially the case at the upper and anterior part of the right hemisphere, where it was reduced to a layer about one-tenth

of an inch thick for a length of two or three inches; the colour of the grey matter was as usual. Brain otherwise looks very healthy, except that it is very small.

The whole of the right auricle is full of a large black clot, extending into the artery, where it becomes fibrinous; the fibrinous clot looks ante-mortem. Small clot in left ventricle. Mitral valve thickened. Adhesions at lower lobe of right and left lung; right lung much congested. Spleen congested. Kidneys are very large and granular, but the capsule strips off easily. Liver rather enlarged. Not the slightest indication of softening at any part of the brain. The bony prominence at the forcular Herophili was very large. Body was fairly well nourished.

According to information collected shortly before and after her death, it appeared that three female relatives have died from head affection, insanity, or epilepsy. She herself had a fit two years ago, as her mother states; was quite unconscious two or three days; was laid up five weeks. Nearly two years ago she was maniacal, rushed about the streets, throwing her clothes over her head, and throwing things out of the window, and using foul language, so that she was taken into custody. She was raving mad for a month, then gradually improved, and got better during the summer; seemed, in fact, to be well, except that she was slothful, neglectful, and forgetful. About eight weeks ago she seemed silly, soon after had a fit, was found lying unconscious; she regained, however, her former state, and remained in the same for some days before her last attack set in.

In endeavouring to come to a clear view of the nature of the disease in this instance, we will first take the fact, unknown to us at her admission, that she had previously suffered from serious cerebral disorder. This assumed a well-known form, viz. epileptic mania, one of the most formidable varieties of insanity. Falret assigns to it the following character, viz. abrupt invasion and cessation; exact correspondence of one paroxysm with another in all particulars—the same words, the same acts, the same ideas recurring on each occasion; less incoherence of speech than exists in many other insane. The ideas which haunt the epileptic maniac are of an especially terrifying character, and are often attended with hallucinations of smell, sight, and hearing. These sufferers have almost continual visions; they see frightful objects, spectres, phantoms, assassins, armed men threatening to kill them; they behold constantly luminous objects, flames, fiery

circles, and, what is worth noting, a red colour and bloody appearances often predominate in their visions. A particular feature of their agitation, noted by all authors, consists in the excessive violence of their actions, which induces them to smash and break, in a kind of fury, all the objects around them, to bite, to tear, to scream incessantly, and to dash, with frantic fury, their heads against the walls. This agitation is sometimes carried so far that these patients become the most dangerous of all the insane, are dreaded in all the asylums, and can only be managed by the most energetic coercive means, such as the strait-jacket or padded room.

I have given you this account of the severity of epileptic delirium, because it enables us to form some idea of the nature and intensity of the morbid action. The prevalent theory of epilepsy explains the unconsciousness and the convulsions by supposing that the arteries are in a state of spasmodic contraction, and that the intellectual centres cannot function for want of blood, while the excitable districts, on account of the commotion excited by suddenly withheld nutrition, give rise to the convulsions. But though this theory, supported as it is by Kussmaul's and Tenner's experiments, might account for a short paroxysm of epilepsy, it evidently will not for a maniacal paroxysm of some days' duration. It is impossible to believe that a patient with an utterly anæmic encephalon should be capable of sustaining such violent and prolonged exertion as I have described above. Disordered, hurried, imperfect nutrition no doubt exists in the nerve-cells of the epileptic maniac, but is not dependent merely on a sudden interruption of the nutritive supply, but on some deeper-seated and more innate defects of the nerve tissue itself.

We will now look at the results of the autopsy, which, I may state, was made under great disadvantages. They may be shortly summed up as (1) evidences of defective development, or, perhaps, atrophy of the hemispheres; and (2) a questionable condition of the kidneys. The enlargement and granular condition of the latter are suspicious features; and it is also to be mentioned that the urine was singularly deficient in uric acid, on one occasion at least. In other respects it was, however, apparently healthy; nor did I discover in the fluid taken from one of the bullæ any indication at all of uric acid by Dr. Garrod's thread experiment. Could we assume that our patient had been the subject of any form of uræmic poisoning, it would aid us very materially in ac-

counting for her symptoms; but, as the evidence stands at present, it seems to me insufficient to justify this view, except in a restricted sense. I may make the remark here, that an abnormally large size of kidney by no means implies an unusually active or powerful excreting organ, but quite the reverse. The increased size of the kidney mainly depends on hypertrophy of its secreting epithelium, of that lining its cortical tubes. This cell substance is undoubtedly intimately concerned in the act of secretion; and, though we are unable to explain how it subserves the function, yet I think its excessive increase is to be regarded in much the same light as the accumulation of epidermic cells in the cavity of a diseased sebaceous follicle. The pathological error here is not hypersecretion, nor mere retention of secretion, but excessive formation of imperfect secretory structure.

Next, looking at the hemispheres, we have to notice the considerable effusion of clear fluid found in the ventricles, and in the sac of the arachnoid, and the particularly small amount of grey matter in the convolutions of the hemispheres. These phenomena, taken together with the absence of any softening or other apparent structural lesion in any part of the brain, with the absence of any flattening of the convolutions, and of any effusion of lymph in the pia mater, or in the ventricles, can only, it seems to me, be interpreted as signs of either atrophic wasting, or original defective development. In former days such a case as this would undoubtedly have been styled one of serous apoplexy. The effusion would have been held to be the result of hyperæmia, and to have caused the stupor and other cerebral symptoms by exerting pressure on the nervous centres. But it is quite certain that serous fluid may exist within the skull in large quantities without materially impairing the ordinary mental faculties; and I believe we shall not be far from the truth, if we conclude that it does not act injuriously until it begins to exert undue pressure on the adjacent nervous masses. Dr. Bright's patient, Cardinal, possessed very fair mental faculties, and had not any notable cerebral disorder until about the age of 23, when the skull seems to have been undergoing ossification, and consequently must have offered more resistance to the outward pressure of the fluid. The same is the case in hypertrophy of the brain; symptoms of disorder do not occur until the enlarging mass is subjected to pressure. In cases of this kind the brain is anæmic, and the morbid phenomena, stupor and convulsions, may reasonably be referred

in great measure to deprivation of the usual supply of blood, and consequent failure of nutrition.

Had the convolutions been found flattened and compressed in our patient, and the arachnoid dry, there would have been much more ground for suspecting that the ventricular effusion occasioned the symptoms. Messrs. Bucknill and Tuke say that congestion of the pia mater, and consequent serous effusion into its meshes, is the constant result of atrophy of the brain. This expresses very nearly our experience in this instance, for the grey surface of the hemispheres was remarkably atrophied. Why, however, the fluid did not collect in the subarachnoid space, as it usually does, I cannot say. As, however, no trace of inflammation was found, and the previous existence of hyperæmia is quite hypothetical, I regard the effusion as by no means the principal cause of the stupor and coma. If, however, the substance of the brain itself was infiltrated with watery serum, as we often see in the organs of those who have died from asthenic delirium, I am much disposed to think that such effusion might be concerned in the production of stupor, as is rendered very probable by Buhl's researches.* He finds that diminution of the usual water amount in the encephalon, as in the first stage of cholera, coincides with mental clearness; while a return to the normal amount in the typhoid stage is attended with stupor and coma.

Setting aside, then, the effusion as the principal cause, we have to notice the remarkable atrophy of the convoluted grey surface. How this was produced cannot be stated; it does not appear to have been the result of any local morbid process, such as hæmorrhage, or periencephalitis; and I am rather disposed to think it may have been congenital, or the result of defective development. It seems clear that there is a considerable tendency to nervous system disorder in her family, three female relatives having died insane or epileptic. This makes it both probable that the nervous centres might have been imperfectly constituted originally, and also that they might subsequently be prone to degenerate, or to lapse into functional disorder. It is very intelligible how with so defective an organisation a comparatively slight cause would suffice to produce deranged action. A moderate amount of renal excernenda retained in the blood, a moderate amount of common catarrhal depression might utterly derange so unstable an equilibrium as her nervous centres had, at any rate during the latter years of her life.

* 'Syd. Soc. Year Book,' 1863, p. 45.

But what, then, was the cause of the symptoms observed during life? Essentially, I believe, an epileptic state, employing the term to denote not only the paroxysm itself, but the morbid condition existing during the intervals. Esquirol states that among 385 epileptic women, 145 were demented, 16 constantly, the others for a shorter or longer time after the attacks. Griesinger tells us that conditions of melancholia or mania succeeding epileptic seizures 'in general rapidly pass off, particularly by sleep; sometimes, however, they pass into a condition of stupor, in which the patients with more or less cerebral congestion and fever, lie completely exhausted and prostrated, and may at last sink in the course of a few days, or it may be weeks, under a condition presenting indefinite typhoid-like symptoms, with negative post-mortem results' (p. 405). Such seems to have been very much the case with our patient. She had suffered before with epileptic attacks, and once with mania of more than a month's duration; and, I believe, on the last occasion, the chief difference was that the seizure was followed by the stupor of dementia instead of by maniacal excitement. The large sloughs on the nates tended no doubt materially to exhaust her strength, and so to hasten her end. It is noteworthy that her temperature was not decidedly elevated for several days after her admission—an important point, as excluding the diagnosis of low fever (typhoid), which her aspect rather suggested.

Lastly, we may notice some points which are of less importance to our main purpose, but nevertheless interesting. Rigidity of the limbs and trunk, and tremor, were noticed on at least two occasions. These phenomena belong to the class of convulsions, and must be regarded as indications that the epileptic tendency was still prevailing. The fugitive erythematous patches which were observed on the chest and back, and the bullæ which formed on the limbs, were rare and interesting events. It is certain that they cannot be explained by pressure or any accidental irritation, and I have little hesitation in referring them to a paralytic condition of certain vasomotor nerve centres—probably those existing in or about the pons varolii. Other indications of vasomotor nerve paresis existed, as elevated temperature and quick pulse. The sudden appearance and speedy recession of the erythematous patches is very significant of their relation to nerve disorder. The absence of paralysis of the limbs is very consonant with the state of brain discovered at the autopsy;

there was marked lesion of the intellectual centres, but none of the motor. Had the ventricular effusion exerted pressure, we may be pretty sure it would have told on the corpus striatum forming part of the floor of the ventricles. The gingivitis may, very possibly, have been produced by the administration of mercurials before her admission, but I can only surmise that such was the case; and it may have been owing to casual stomatitis, or resulted from the cerebral derangement.

XXVIII.—*Apoplexy, with Apparent Death from Epileptoid Fits. Restoration on several occasions by Artificial Respiration.* By Arthur Leared, M.D. Communicated by Dr. Handfield Jones. *Read March* 25, 1870.

A COUNTRY gentleman, 68 years of age, of spare build and active habits, who was much given to field sports, had consulted me occasionally for several years. His most important ailment was spasmodic asthma, but the tendency to it had greatly abated in the latter years of his life. This asthma was apparently excited by trifling causes, such as, on one occasion, by the smell of fresh paint. Yet he was in the habit of enduring fatigue and exposure in the worst weather with impunity.

In the early part of last year he had a slight apoplectic seizure, from the graver effects of which he completely recovered. It was noticed, however, that for some time afterwards he occasionally dropped his walking-stick, or his knife when at table. His voice too was less clear than was natural to him. I strongly impressed upon him the necessity of avoiding all excitement, in order to avert a repetition of the attack.

On the morning of January 28 of the present year, I was requested to see this gentleman, then staying at an hotel in town. He had been at a theatre the previous evening, had been much amused, and retired to bed at midnight. It was added, that when called at the usual hour in the morning, no reply was given, and that he was with difficulty induced

to unlock the door. His manner was then confused and his speech incoherent.

On entering his room about a quarter of an hour later, I found the patient partially dressed, stretched upon the floor on his face, with extended arms. He was completely unconscious. There was no movement of the limbs, and at times the arms became rigid. Inspiration was deep but not stertorous. The number of respirations was increased and the pulse was quickened. The heart sounds were normal. Reflex movement could be produced by tickling the soles. The face was rather congested, the mouth drawn to the right side, and he was bleeding from the nose and from a cut on the lip caused by falling. There was no unusual throbbing of the carotids.

About ten minutes after he had been placed in bed a violent convulsive attack came on. It subsided in about two minutes, but respiration was not resumed, and the pulse could not be felt. I had quite made up my mind that death had taken place when a very slight respiratory movement occurred. I immediately slapped his chest with a towel dipped in cold water, and continued to do so for some time, when respiration became re-established. Soon after this another fit came on. Dr. Handfield Jones, who afterwards saw the case with me in consultation daily, was then present. It was noticed that the pupils were widely dilated during the fit. Artificial respiration by Sylvester's method was now practised, and after a considerable time respiration was again restored. The pupils were now contracted. We decided to practise venesection on account of the severity and repetition of the fits. About ten ounces of blood were therefore taken from the arm. After this he breathed more quietly and the pulse was less full. Believing that the patient had been saved from imminent death by timely interference, Dr. Jones and I arranged to watch the case in turn during the day.

The fits continued to recur at intervals. They varied in severity, and the duration of apnœa was also variable. After the fourth fit, which occurred at 1.35 P.M., the apnœa lasted two minutes and a half, as accurately determined by my watch, but it required nearly four minutes, during which time artificial respiration was sedulously practised, before respiration was sufficiently restored.

After this fit seven grains of bromide of potassium were injected subcutaneously, and this was repeated in four hours. This treatment appeared to allay the severity and frequency

of the attacks until the occurrence of the seventh fit at 5.20 P.M., and this proved to be the last. It is to be noted that a period of complete apnœa continuing for two or three minutes followed every fit, and that respiration appeared in every instance to be only restored by our strenuous efforts. The patient was now in a semi-conscious state, but this was due to torpor of the brain rather than to coma, although at times the breathing was stertorous. The respirations were 20 in the minute. Pulse 85; temperature 100·4° F.

29.—9 A.M.—Nutritive enemata had been given during the night, and he rallied considerably. He once or twice spoke rationally without being questioned. Respirations 32. Pulse 130; temperature 101·8° F. As he is now able to take beef-tea by the mouth, the enemata to be discontinued. The bromide injections to be continued as may seem to be indicated.

30.—9 A.M.—Has passed a tranquil night. His condition little changed. Mouth much less drawn to right side, moves right arm partially, and helps it with left hand. Later in the day Dr. Bristowe met us in consultation, and agreed generally as to the nature of the case and its treatment.

9 P.M.—Respirations 28. Pulse 118, and irregular; temperature, 102·9° F.

At certain points on the right shoulder-arm and forearm corresponding with the spots where the bromide had been injected, bullæ containing dark-coloured fluid, or else dark patches, which appeared to have been caused by ruptured bullæ, were discovered in the trajet of the injections. On the left arm and breast, which had also been injected, no such results had followed, but one much smaller bulla than those on the right side was discovered at a point of injection on the left hip. The injections were now omitted.

31.—Respirations 28. Pulse 90; temperature 99·8° F. Pupils natural. Says he is better. Takes nourishment freely.

Urine examined; found free from albumen and from sugar.

9 A.M.—Respirations 36. Pulse 115, nearly regular, but weak; temperature 101·2° F.

February 1.—9 A.M.—Had a good night. Pulse 100 and intermits. Respirations 36. Temperature 102·2° F.

9 P.M.—Looks pale. Has taken less nourishment than usual to-day; debility increased. Pulse 108 and very irregular. Respirations 44; temperature 101·8° F.

2.—10 A.M.—Bad night. Face haggard, eyes sunken, and pupils large. Pulse 120 and very weak. Respirations 44;

temperature 101·8° F. About midday the patient became more than usually prostrate, and we were summoned to his bedside. Sir W. Jenner now saw him in consultation, but it was evident that no active treatment beyond an administration of stimulants could be employed. Towards evening, in spite of brandy and ammonia, the asthenia was so extreme that the power of swallowing was almost lost. As an extreme measure, we injected into a vein in the arm 7 drops of liquor ammon. fort. diluted with 2 parts of water. This was not attended by any good result, and the patient died quietly at 9 P.M.

It is greatly to be regretted that this interesting case was not rendered complete by a post-mortem examination, but this was not permitted by the relatives of the patient. Cerebral hæmorrhage had no doubt taken place, and the symptoms during life make it probable that its seat was on the surface of the hemispheres beneath, or on the arachnoid, as pressure in this situation is well known to give rise to convulsions.

The point of greatest interest is the remarkable way in which animation was restored by artificial means after apparent death. It is true that in the first instance respiration was faintly attempted before means were used to assist it, and that these consisted only in exciting reflex action by stimulating the nerves of common sensation. But from the repetition and severity of the fits and consequent more prolonged apnœa, it is certain that these means would have been subsequently inefficient. Experience of the first period of apnœa suggested the employment of artificial respiration, but Dr. H. Jones afterwards pointed out to me that he had stated that the experiment promised to be useful in apnœa consequent upon epilepsy.*

Our attention was so much occupied in our endeavours to avert death, that we were unable to make minute observations during the periods of apnœa. But, as already stated, it was noted that after the first fit, the artery at the wrist had ceased to pulsate. The duration of apnœa after the fit was accurately determined on one occasion to have been 2½ minutes, and this was probably not the longest of these intervals. Now the duration of some of the fits was certainly not less than another 2½ minutes, during which time respiration was also suspended. This makes the total period of apnœa 5 minutes. And when it is considered that vitality was restored by arti-

* 'On Functional Nervous Disorders,' p. 294. (1870.)

ficial means no less than 6 times in about 5 hours, the results are not a little encouraging. At one time in the present case it seemed as if recovery would have ensued, and even the prolongation of life for six days proved of great importance, by affording relatives who came from a distance the opportunity of conversing with the patient.

We know that during an epileptic fit the glottis is spasmodically closed. Death, which is sometimes the immediate result, is caused by apnœa, just as it is by drowning. The present case proves sufficiently that artificial respiration is a most valuable mode of treatment in apnœa from epilepsy and some allied affections. The treatment is indeed more to be relied on in apnœa from these causes than in that from drowning, because the lungs are then more or less filled with water.

Blood-letting in this case seemed to have been decidedly useful in allaying the violence of the fits, and eventually in removing them. A share in this effect must, however, be attributed to the bromide of potassium. We did not think it necessary to employ strong purges, and every effort was used to sustain the strength by regulated quantities of beef-tea and wine. We were indebted to Mr. Willis, of the Great Northern Hospital, for his assiduity in carrying out our instructions during the first three nights of the patient's illness.

The formation of bullæ as a direct local effect of the injection of bromide of potassium was a curious circumstance. Bullæ are chiefly known to occur in the case of persons whose vitality is evidently low, and it is to be observed that with one trifling exception they appeared on the paralysed side of the body exclusively. It is worth recalling in this connection, that bromide of potassium taken by the mouth has been known to induce purpura.

XXIX.—*On a Case of Inguino-crural Hernia.* By C. Holthouse. *Read April* 8, 1870.

In a case of inguinal hydrocele which I brought before the notice of this Society on the 11th of last month, I directed attention to the anatomical peculiarities which gave rise to this disease. These were, an arrest in the transition of the testis, so that it remained within the inguinal canal or just outside the external abdominal ring; while the vaginal process of peritoneum which accompanied it, became closed above, and thus constituted a true tunica vaginalis testis, though situated in the groin and not in the scrotum. Within this, fluid had collected, and hence the formation of an inguinal hydrocele. If, with a similar position of the testis, its vaginal process should remain unclosed above, we should have a sac ready formed for the reception of a hernia, and should such occur, the protrusion would hold the same relation to the testicle as it does in the ordinary congenital inguino-scrotal rupture. But as the hernia I am about to describe occupies the inguinal canal and groin, instead of this canal and the scrotum, I propose, by way of distinction, to call it inguino-crural hernia. This affection, though undoubtedly rare, is less so, I believe, than is generally supposed, and is probably in most instances congenital. In the forty-ninth volume of the 'Transactions of the Medico-Chirurgical Society,' however, Mr. Hulke has put upon record a notable example of this affection, in which the sac was an acquired formation, the testis remaining in the abdomen.

Lawrence, in describing the varieties of inguinal hernia, remarks: 'A modification of external inguinal hernia is sometimes observed in which the parts, instead of descending into the scrotum or labium pudendi, turn downwards and outwards into the bend of the thigh, and thus occupy the same position as in femoral hernia.' He further informs us, on the authority of Dr. Monro, author of the 'Morbid Anatomy of the Human Gullet,' that Mr. A. Burns had seen this modification of inguinal hernia in the female in several cases. Mr. Aston Key also has recorded a similar affection in the male. 'The shape of the swelling,' he observes, 'was peculiar; the hernia, instead of passing downwards into the scrotum, turned, after emerging from the inguinal canal, over the tendon of the external oblique muscle, and appeared

somewhat like a femoral hernia. The testicle had never descended lower than the external ring, and explained the peculiarity in the course of the hernia.' Mr. Humphry, of Cambridge, too, in a note to his essay on the male organs in Holmes's 'System of Surgery,' when treating of retained testicle, relates the case of a young man 'whose testicle had descended only just below the external ring, and in whom hernia suddenly took place and was strangulated. The bowel, instead of passing downwards, ascended upon the oblique muscle nearly to the spine of the ilium.' Mr. Birkett, in his article on hernia in the work just quoted from, considers it so rare, that he devotes but four lines to its description, and then adds, 'An example of this rare variety is quoted by Scarpa, and another case has been recorded by Dr. Fano.' Lastly, in some clinical remarks on hernia made by Mr. Paget, and published in the 'British Medical Journal,' Jan. 29, 1870, he is reported to attribute this variety of hernia to the large size of the protrusion. I have met with two cases of this form of rupture, one in the male, the other in the female, notes on the former of which I now submit to the Society.

G. P., aged 21, a strong stout young man, was admitted into the Westminster Hospital on the evening of May 29, 1868, for a large hernia in the left groin, which had made its appearance suddenly and for the first time three weeks before, on jumping from a cart; but on the afternoon of his admission, while lifting a heavy flagstone into his cart, it had become much larger, and also painful. At 9 P.M. the house surgeon being in doubt as to the nature and condition of the hernia, asked me to see it. I found a large, prominent, oblong tumour, the size of a goose's egg, lying parallel with and above Poupart's ligament. It was moveable, highly elastic, and resonant on a fillip with the finger; the skin over it was neither tense, red, nor hot. There was no testicle in the scrotum, which could scarcely be said to exist on that side; but this gland could be felt, and formed the upper part of the swelling. On introducing the finger through the external abdominal ring, the outer margin of that opening was obscured by a fold of bowel, which had passed through and out of the ring, and finding no scrotum in which to descend, had passed outwards and upwards, and lay immediately between the integuments and the aponeurosis of the external oblique muscle constituting the tumour above mentioned. On pressing this downwards, a portion the size of

a large marble could be made to protrude into the upper part of the undeveloped scrotum.

As handling was painful, and there were no signs of strangulation, the taxis was not employed, but ice was directed to be applied to the tumour, and 2 grains of opium, in the form of pill, were ordered to be given every three hours if necessary. On the following day the tumour had disappeared, and nothing but a fulness occupied its former site; this was found to be owing to the testis, which occupied a large adventitious pouch between the skin and the muscular aponeurosis, and could be pushed about from one part to another with the greatest freedom and without pain. The finger could also now be passed well into the inguinal canal, which was very large and caused no pain. The ring on the opposite side was small, and its pillars tense, and would only just admit the point of the finger, which gave pain.

Remarks.—The causes which contribute to give an oblique inguinal hernia an outward instead of a downward direction, after it has emerged from the inguinal canal, are probably two-fold. 1. The undeveloped condition of the scrotum. 2. An abnormal separation of the columns of the aponeurosis of the external oblique. The former is probably the most potent determining cause in the male, while the latter can be the only cause in the female: the size of the protrusion can, I think, only be regarded as a secondary element. The non-existence or non-development of a scrotum on the side of the protrusion needs no dissection to verify it, but the abnormal separation of the pillars of the external abdominal ring has been proved by dissection. Lawrence, quoting still from Monro, informs us that Mr. A. Burns had examined after death no less than seven cases in the female, in all of whom there was this defect of the abdominal wall. The following may serve as a type. 'The herniary sac was about two inches in length, and in shape resembled a Florence flask; the bulbous extremity, extending from the lower orifice of the canal, was contained in the upper part of the thigh, lying more in the course of a crural than of inguinal hernia. By dissection we ascertained that the deviation from the usual direction of the tumour was produced by a premature separation from each other of the external pillars of the inguinal canal.'

As regards diagnosis in the male, this can be readily established by a digital exploration of the inguinal canal, and by the absence of the testicle from the scrotum; in the

female by the normal condition of the femoral ring and the fulness in the course of the inguinal canal, and in both by the sudden occurrence of the rupture.

Treatment.—In the treatment of this variety of congenital hernia there is nothing special. What is proper to be done in the several conditions to which herniæ generally are liable is equally applicable to this.

XXX.—*A Case of Local Paralysis, successfully treated by injection of large doses of Strychnine in concentrated solution.* By R. Barwell. *Read April* 8, 1870.

I FIRST saw this patient in Dr. Pollock's out-patient room; he was then undergoing Faradization. I had long been looking for an instance of undoubted local paralysis, and, at my request, he kindly handed the case to me.

Robert S., tailor, aged 58, came under Dr. Pollock's care October 13, 1869, with paralysis of the right hand and forearm. For about eighteen months the man had been suffering from frequent cramps about the outer side of the forearm and in the thumb, which was worse after a hard day's work. About three months or rather longer ago, he suddenly lost all power of lifting the hand at the wrist. There was no accident nor any unusual excess of work, nor any other means of accounting for the sudden attack. The man, however, who is intelligent, says that he has often seen among tailors a more or less complete and temporary loss of power, which he has attributed to lifting the heavy 'goose.' He has been taking tonics and subjected to Faradization, which calls forth no contractions whatever.

The loss of power affects the supinators and extensors; when the hand is prone the wrist drops, and he has no power to raise it, exactly as in painter's dropped wrist; no power to straighten the fingers, which are semiflexed, and certain movements of the thumb, extension and abduction, are much impaired. When told to supinate the arm, he does so very slowly, and entirely by the action of the biceps. When the

elbow is straight, he cannot supinate the arm at all; there is no detectable wasting of muscles. In many ways the form of disease resembles paralysis from lead-poisoning, but there is not the slightest history of such condition, no mark of lead in the system.

December 6.—Dr. Pollock had sent me this patient the previous week. At the above date I injected under the skin, above and in front of the external condyle of the humerus, 7 half-minims of a solution containing one grain of strychnia in 50 minims of water. No immediate results: after a quarter of an hour the man was dismissed.

8.—The man had suffered no inconvenience, but I am well satisfied at the increase of power; he could not raise the pronated hand, but, when raised, could support it in that position. The seat of injection inflamed.

13.—Injected 10 half-minims of the solution at a spot a little lower.

15.—Power still further increased; he can raise the hand at the wrist, slowly and with effort, and in supinating the arm uses the supinators somewhat, though the biceps is still the chief agent.

20.—Dr. Pollock saw the patient with me; he thought the man so much improved, that he proposed leaving the rest of the cure to nature, and this course was adopted.

30.—The condition is precisely the same as at the last date; each action was carefully examined, but no perceptible improvement or deterioration was perceived. Twelve half-minims of the solution were injected at this time at the back and outside of the arm, below the head of the radius.

January 3, 1870.—There is a manifest increase of power; the man can now raise the hand at the wrist rapidly: in supination the biceps is not abnormally active, and this action can be performed with a straight elbow.

6.—The patient, feeling the hand as strong as ever, wished to resume work, and discharged himself from care.

Remarks.—The above is a case of paralysis purely peripheral, and very probably originating in the sort of long-continued exertion to which it was attributed by the patient. The loss of power was limited to a group of muscles supplied by the musculo-spiral and its muscular branch, the posterior interosseous nerve. The injections were made firstly over the former trunk, as it lies inside the supinator longus, then over its bifurcation into radial and posterior interosseous; lastly, at the outside and back of the arm, where that nerve passes

round the radius. It is, however, hardly likely that the fluid itself penetrated sufficiently deeply to come in contact with the nerve, but it would be difficult to assign a local limit to its action.

The progress of the case makes its history almost an 'experimentum crucis' by, firstly, the utter want of contraction to the induced current and its non-remedial effects; secondly, the immediate response by increased power to the strychnine injections; thirdly, the stationary condition of the paralysis when these injections were omitted; and lastly, the further progress on their resumption.

This peculiar practice—viz., the hypodermic injection of such large doses of strychnine in so concentrated a form—requires some comment, which I must commence by a review of certain principles which guide me in the use of all hypodermic injections.

I began this mode of administering medicines very soon after their introduction, and the first case so treated was one of severe sciatica. I injected $\frac{1}{3}$ gr. morphia (approximately) in 7 half-minims of water. The result was so satisfactory that I used the same solution and the same dose for another patient after an amputation of the breast, and here the effect was not good; sleep was a long time coming, and was more interrupted than I wished. In considering this difference (for idiosyncrasy is only a last resort of reasoning when we do not understand an unexpected action of our remedy), I concluded that the circumstances of the two cases thus far differed: in the first my patient was kept wakeful by local pain, the topical action of the drug relieved this, and therefore he slept. In the second, the morphia was intended to act, not as a local anodyne, but as a general narcotic; and, after the event, it appeared to me that, as I had intended a different action, so ought I to have used the medicine differently. The next night I took up in the syringe the same quantity, 7 half-minims of solution, and added thereto 13 half-minims of water. My patient slept perfectly. Since then I have kept in view, and numerous cases have shown their value, the following principles.

When employing hypodermic injections, the areolar tissue may be used for one of two purposes; we may either regard it as a more convenient, more rapid, and less easily deranged absorbent mechanism than the stomach, and desire by medicines so exhibited to affect rapidly the general system—and in this view we disregard the topical action of the drug; or, on

the other hand, as in neuralgic pain, we desire that the remedy should have as great a local action as possible, and with such aim we regard its general effect only sufficiently to avoid the production of dangerous or unpleasant symptoms.

The inference empirically taught me is obvious—viz., that to influence the general system, we ought to put our dose of medicine into as large a quantity of water as can be conveniently used, exposing it thereby to a large surface, and rendering it by its lack of density easy of absorption.

While, in order to procure an intense local and a slight general action, we ought to retard its absorption so as to leave the drug a long time in the neighbourhood of, or in contact with, the particular tissue we desire to influence, to do this, a concentrated solution should be employed, whereby we effect our object in a two-fold manner. Firstly, by exposing the fluid to a small absorbent surface; secondly, by rendering the solution dense, and thereby greatly retarding endosmosis, the first act in the process of absorption.

With these views I have taken pains to get a very concentrated solution of strychnine for the purposes here specified, and no consideration would induce me to inject the same dose of strychnine with an additional bulk or two more bulks of fluid. But it must not be supposed that in the use of the above solution I recklessly commenced with the doses here specified; the apparent boldness of my present practice has been slowly arrived at, and justified by many experiments which have convinced me of its safety.

Report upon a Solution of Strychnia employed by Mr. Barwell.
Read April 22, 1870.

We have examined the solution of strychnia which was employed in Mr. Barwell's case, and find that it contains 5·28 per cent. of solid residue. Of this percentage 2·1 is soluble in chloroform, the rest being insoluble. We therefore conclude that the solution in question contains 2·1 per cent. of hydrochlorate of strychnine.

Richard Barwell.
John Harley, M.D.
J. B. Sanderson, M.D.

XXXI.—*Four additional Cases illustrating the Hypodermic Injection of Strychnia in large doses.* By R. Barwell. *Read May* 27, 1870.

On March 25, I brought before the notice of this Society a case of local paralysis, which had been cured by three subcutaneous injections of strychnia, having resisted all other means for thirteen weeks. Although, of course, the simple facts of the case were not called in question, the strength of the solution, the propriety of its use, and other points, excited great doubt. At a subsequent meeting my correctness in the matter of the solution was proved, but much scepticism was still conspicuously displayed; further experiments were asked for, and animals, as convenient subjects for such experiments, suggested. I have made no experiments on animals, since I think a very long course of such would be necessary to test peculiar differences in the sensitiveness to the drug and in the construction of the subcutaneous tissues before results could be accepted. But in treating one new case by this mode, by varying the solution and the method of its injection in old ones, I have made my practice a field of experiment with certain results which, I hope, will not prove uninteresting to the Society. Let me only premise that my principal object now is not to show the benefit of the drug, but its innocuousness in the mode of using it.

Case I.

Ellen P., aged 9 months, a well-formed, lively child, came under my care March 8, 1869, with paralysis of the deltoid and the muscles of the upper arm. The treatment was eminently nugatory; no contraction had been caused by any battery, and the child was in January, 1870, in the same state as at first.

I determined to try the injection of strychnine, but for reasons already specified (see the remarks in my previous paper), I discarded all idea of a weak solution, and procured one of 2 per cent., fixing on this amount, as each mark on the syringe ($\frac{1}{2}$ minim) represented an easily calculable fraction, $\frac{1}{100}$ of a grain. I began with $\frac{1}{2}$ minim, and injected the arm over the deltoid three times a week, increasing each injection by $\frac{1}{2}$ minim, arriving at seven half-minims, i.e. ·07 ($\frac{1}{14}$) grain.

I remained at this quantity for three weeks, and then increased again. In the beginning of April, after I had injected 12 half-minims, some twitchings occurred of a character which alarmed the nurse, and also one of the assistant-physicians, unaware of my proceedings, and the careful steps by which I had carried it on. Nevertheless, I continued the injection, dropping the amount again to seven half-minims, and repeated them eight times, when, from the constant puncture or other cause, the parts became inflamed, and I have not since injected.

The inflammation has quite subsided, and there is a certain amount of voluntary power returning.

Case II.

John B., æt. 4, had been a long time under my care with old infantile paralysis of the right leg, quite complete. The child had been galvanized with the interrupted current before I saw him for months; and I had worked since October last with the constant current without producing any contractions. The case is one of those to be ranked among the hopeless ones.

February 25.—I injected 3 half-minims of solution, and followed this plan weekly, adding each time half a minim. On March 25, when my former paper on this subject was read, I had injected 7 half-minims. At this amount I remained a fortnight. On April 15, I injected 9, on the 22nd, 10 half-minims.

In considering the position in which I stood to the Society, it appeared that I ought to make further experiments; and as it had been suggested that the chloride of magnesium in my solution might be the agent which prevented the action of the strychnia, I had a solution made in a different manner. My first solution was neutralised, or nearly neutralised, by magnesia. The one I now had made by Messrs. Haselden, of Conduit Street, was prepared under my own eye; thus:—Strychnia, 2 grains; distilled water, 80 minims; dilute hydrochloric acid, 3 minims—boiled together in a test tube till the strychnia was dissolved. As the solution became sufficiently cool, 15 minims of alcohol were added. The whole was then poured into a minim glass, and filled up accurately to 100 minims. Not a particle of strychnia crystallised out while the solution was being made, and the last few drops still remaining to me are perfectly clear.

With this solution I injected subcutaneously, this patient using five half-minims. I have subsequently increased the dose to seven.

The result here is not eminent success, but most of the muscles show contraction to the constant current, but only slight ones.

Case III.

F. A., æt. 14 months, paralysis of left leg complete. This case is just like the last, with the exception of two points. I began the use of injections at the same time; I changed the sort of solution at the same time. The differences are these:—The muscles have improved so that voluntary power is pretty advanced at the present date; and, moreover, being in the habit of using ten half-minims of solution, I on one occasion dropped the amount to seven, but these were injected in two different places. No immediate result followed, but the mother told me that the boy 'jerked his head and rolled his eyes' for about half an hour after he left the house. These twitchings were not severe enough to alarm her in the least, but appear to have struck her as a rather humorous exhibition.

I ought to have said the constant current has been continued to be used in both these cases, but only twice a week.

Before going on to the next case, may I point out what these changes prove?

First: My first solution was neutral, or nearly so, but contained chloride of magnesium; my second solution was acid, but free of the salt. Hence it appears necessary to conclude that the absence of evil consequence does not depend on the presence of chloride of magnesium or of hydrochloric acid, unless we assume that both agents exercise a like protective influence, an assumption which would require to be supported by a great mass of evidence.

Secondly: In the third case ten half-minims of solution injected into one place caused no general effects; but on the same child, and as far as human investigation would enable me to discover in the same state, seven half-minims injected into two places caused manifest nervous disturbance; whence we may conclude that the hypothesis I ventured to throw out —viz., that the small surface of absorption is one of the chief protective influences—is well founded.

Case IV.

M. R., æt. 7 years, had paralysis of the right leg when 5 months old. It is impossible to make out from maternal description what especial muscles were affected. She is now brought to me for a deformity of the foot. This is of a sort which I have named Pes cavus, which is dependent solely and entirely on paralysis of the sural muscles. Normally the heel of a child projects backwards, and its point lies considerably behind the tibia. If the sural muscles be paralysed, the heel drops, and the subject would stand on that part which ought to face backward. If the deeper layer of muscles be also paralysed, the rest of the foot remains in its proper place, and the deformity is called calcaneus. But if, as in the case which I am now describing, the poster tibial, peroneus longus, and flexor longus pollicis remain sound, they draw down the anterior foot so as to aid in the support of the body, and this deformity, Pes cavus, is produced. The description here is only intended to prove that we have, as far as paralysis is concerned, to do simply with the sural muscles. It is needless to describe the treatment whereby in great measure the fold in the middle of the foot has been straightened out. I still wanted to restore, if possible, power to the paralysed parts.

May 4.—With a battery of fifty elements (Smee), made for me by Messrs. Weiss, I carefully tested the above-named muscles. The battery had been freshly cleaned and charged; its current was very strong; but it produced no contraction of the sural muscles whatever. I injected five half-minims; on the 7th May seven half-minims; on the 11th eight; on 14th nine. 18th, I tried the effect of the battery, which had been used four times a week since the previous trial; it was therefore less potent. The muscles were very sensitive to fifty cells, and acted unmistakably to thirty. I then injected ten half-minims; on the 21st I injected eleven; on the 25th twelve half-minims. This brings the case to the last visit. There is slight but unmistakable voluntary power in the soleus; it is doubtful if there be any in the gastrocnemius. There has not been the trace of a twitching or involuntary movement.

[August 1870. Mr. Barwell states that the sural muscles now respond freely to twenty cells of the battery, and their size is considerably increased. Voluntary power is in great measure restored.—Ed.]

XXXII.—*Cases of Local Paralysis, treated by Electricity.*

By Francis Ed. Anstie, M.D. *Read April* 22, 1870.

THESE three cases are brought forward as illustrating two points—firstly, the very positive effects which electrical treatment diligently persevered in will produce in appropriate cases, when every other kind of agency has failed; and, secondly, the interesting differences between the effects of the constant and the interrupted currents, and the valuable way in which they can supplement each other's action at different periods in the treatment of the same case.

Observation 1.—James B., aged 32, a paper-stainer by trade, applied to Westminster Hospital out-patient department October 20, 1870. He then suffered from complete paralysis of all the extensor muscles and the supinators in the forearm, of the ball of the thumb, of the triceps extensor, and almost complete paralysis of the deltoid. There was extreme wasting of the affected muscles, especially those of the forearm and the ball of the thumb. The flexors, though by no means paralysed, were greatly weakened, the grasping power of the hand being much enfeebled. The affection had commenced about three months previously, and had gone on with much rapidity; the loss of power commenced in the thumb muscles, and very soon there followed complete wrist-drop. At the time of application to the hospital he stated that for several weeks past he had been completely incapacitated from work, and that he had taken a large quantity of medicine with no effect whatever. There was no history of any previous illness, either recent or remote; the affection of the muscles was merely preceded by aching. The man positively denied ever having had any venereal disease; nor had he ever received any blow or other injury.

Present Condition.—A rather thin and sallow man. He presents, however, no special aspect of ill-health more than might be accounted for by the not very sufficient diet to which he is limited by the loss of employment. The right arm hangs helpless and much wasted by his side; he cannot move it more than a few inches away from contact with his body; the muscles are paralysed and wasted in the manner above described. On examination of the gums a distinctly marked blue line is perceived. The left arm is perfectly

healthy; its muscles, though not very large, are compact, and act vigorously; its sensation is everywhere perfect. There is no spinal tenderness. In the affected limb sensation is considerably impaired in the back of the forearm and hand, but not perceptibly so above the elbow, nor on the front of the forearm.

In regard to the suggested diagnosis of lead-poisoning, enquiries were made as to the exact nature of the man's work. It appeared that the right hand alone came into contact with the pigments, which by the way only occasionally contained lead, and that in not very large proportion. The most minute investigation failed to suggest any possible source for the paralysis other than lead; and the very unusual limitation of the disease to one limb must apparently have depended on the fact that the only route of access of the poison was through the skin of the right hand. It is curious that the man had not suffered in any decided manner from constipation or colic.

From October 20 to December 1 the patient was treated continuously with iodide of potassium in large doses (30 to 45 grains per diem), with vegetable bitters, together with the occasional administration of purgatives and the daily use of friction and passive movements. At the end of this time the state of the muscles, instead of being improved, was decidedly worse, and the case assumed a particularly hopeless appearance. It was now determined to apply Faradisation, and accordingly Stöhrer's one-celled apparatus was used daily for the next five weeks. It was observed from the first that, although the triceps, the deltoid, and the thumb muscles responded fairly to the current, the forearm muscles hardly acted at all; nevertheless, each group was assiduously treated with the current, one rheophore being placed on the motor nerve, and the other on the muscles themselves. At the end of the five weeks it was found that the muscles which had shown activity to the current were greatly improved in nutrition, and had recovered most of their voluntary power; but the extensors and supinators in the forearm remained wasted, perfectly powerless, and almost absolutely inirritable to the Faradic current.

It was now determined to try the constant galvanic current, and on January 3, 1870, was commenced the daily application of a current from 20 cells of Weiss's (modified Smee's) battery for five minutes, the stream being directed from the motor nerve towards the belly of the muscles. On

January 25 it was reported that the muscles on the back of the forearm had almost recovered their normal bulk; that extension of the carpus and metacarpus was perfect; that extension of the index and middle fingers had returned to a considerable extent; but that the ring and little finger could hardly be extended at all. The use of the constant current was continued up to the end of February, eight weeks in all, with but few interruptions even of a day. At this date it was for the first time found possible to get good contractions from the muscles by the use of the interrupted current; and as the two outer fingers were still defective in extension, and the hand remained too weak for the man to resume his work, Faradisation was recommenced, and applied daily for about another month. At the end of this time scarcely a trace of muscular weakness remained, and the man was enabled to resume his work. Sensation was everywhere quite perfect.

Observation 2.—This case was one of paralysis of all the muscles of the forearm—extensors and flexors—the sequel of acute rheumatism. The patient was a single woman, aged 40, a refreshment-room keeper at a country station. The attack of rheumatic fever (her first) was quite ordinary in its character, and several joints were affected, but the left wrist was much the most severely and continuously inflamed, and the patient experienced great pain in it. After the illness was over, a slight tumidity of the joint remained, without pain or tenderness; but the most serious fact was the complete loss of all power of flexion or extension of the fingers. She continued about three months under treatment in the country, but matters remained *in statu quo*; and at last she came to London and applied to the Westminster Hospital. Faradisation was at once ordered, as the muscles were found to respond well to the interrupted current. Accordingly it was applied daily in the form of the primary current from a Stöhrer's one-celled apparatus, for about three weeks, but without any effect. There being then some reason to think that the assistant had not applied the current in the proper way, I undertook to Faradise the limb myself; and I did this by the application of the primary current, and afterwards the united currents, from a Gaiffe's small induction apparatus, one rheophore being placed on the motor nerve, and the other on the affected muscles. In rather more than a fortnight the muscles had almost completely recovered, when a slight relapse of the joint-inflammation undid all the work that had been done. The moment that this had sub-

sided, Faradisation was resumed, and in about a fortnight more recovery of muscular power was again complete.

Remarks.—In the two foregoing cases we have a good illustration of two varieties of local paralysis which present very different clinical and practical aspects. In both cases there was good reason to believe that the affection was one primarily of the nerves of the part. So far then the cases were alike, but in the intensity and extent of the damage done they were very different. Where the muscular structure and the nerves remain so far undamaged as to retain their irritability to the Faradic current, there is a great probability that by the use of this remedy alone the affection may be quickly cured. Where, however, the motor nerves of muscles have been so long and so completely paralysed that they will not respond to the interrupted current, then the cure by this agent is certain to be slow and difficult, and, according to my experience, will often be impossible. If to the extinction of Faradic irritability be added a considerable degree of wasting of the muscles, little or no good will be got even by the most assiduous Faradisation. In these apparently desperate circumstances the constant current often produces wonderfully good results; for instance, in the first of the cases now related, after a totally unsuccessful use of Faradisation for nearly five weeks, the constant current at once aroused the irritability of muscles which were wasted almost to nothing. After two months' use of this current Faradic irritability was restored, and the interrupted current completed the cure. This is only one of many similar instances which I have observed, though it is rare to find one so striking and complete. So far as my experience goes, it is altogether in opposition to the doctrine now taught by a certain school—that even where Faradisation fails to produce contraction of the muscles we have only to persevere in its use, and (supposing the case to be amenable to electric treatment at all) the nutrition of the muscle and the power of the will over it will ultimately be restored. The first case above cited might be supplemented by many others, but it has been selected as typical, because the interrupted current was applied daily for five weeks without producing the slightest benefit to certain muscles, whereas the constant current at once elicited contractions and steadily restored the power of voluntary movement, and at last the Faradic irritability, though the latter was curiously slow in returning. In the third case, which will now be related, a similar sequence of

effects was observed in relation to paralysis of sensory nerves, though unfortunately the success obtained was necessarily very much less complete.

Observation 3.—J. L., æt. 21, a clerk, was an out-patient at the Middlesex Hospital, and, in consequence of medicinal treatment failing to benefit him at all, Dr. Burdon-Sanderson, under whose care he was, requested me to see whether electricity might prove useful. The case was a very rare and curious one. The sole affection of which the man complained was a very high degree of anæsthesia affecting the whole right arm, and entirely uncomplicated with motor paralysis. More minute examination showed that the whole of the sensory nerves issuing from the right brachial plexus were affected, and also a few descending (supra-clavicular) branches from the cervical plexus over the deltoid; so that in fact the whole right limb was anæsthetic. As regards the nerves issuing from the brachial plexus, it was observed that the paralytic affection was progressively more marked towards the extremities: thus the hand was much more anæsthetic than the forearm, and this somewhat more anæsthetic than the upper arm. The shoulder branches of the cervical plexus, however, were fully as much paralysed as the sensory nerves in the hand. The treatment of this case ran parallel with that of the first of the cases of motor paralysis above related. Faradisation was employed, totally without effect, for about five weeks, and then the constant current from 25 cells of Weiss's battery was applied daily. In a very few days a marked change was observed; the patient recovered a certain amount of sensation to pricking and pinching; and when the new treatment had been pursued for about six weeks, it was found that sensibility to heat and cold, which had been entirely lost, was restored almost to its normal level. The interrupted current was now tried again, and it was found that the patient was greatly more sensitive to it than when it was formerly applied. The use of this current was thenceforward substituted for that of the constant. At the present date, nearly four months from the commencement of electrical treatment, the position of affairs is as follows:—Sensibility to pricking, pinching, and the Faradic (secondary) current is (roughly speaking) twice as great in the hand, and three times as great in the forearm and arm, as it was before treatment. Sensibility to heat and cold perfect. The patient also voluntarily remarked that, though he still had great difficulty when his eyes were closed in accurately making

out the nature of the surface of any object by touch, his discriminative sensation had now so far improved that he was no longer liable to let things fall out of his hand, as he had frequently done in former times. Curiously enough, the shoulder-branches of the cervical plexus remained highly anæsthetic, and had probably benefited less than any other nerves.

In this case it is improbable that the patient could ever be completely cured. The malady was of six years' standing, and had been first perceived immediately after an attack of scarlatina. There was no history of any other ailment whatever which might have produced the anæsthetic phenomena. Although a most searching enquiry was made as to the possibility of a syphilitic or rheumatic affection, the patient strongly, and to all appearances honestly, denied that he had ever had the slightest trace of either disease.

XXXIII.—*A Case of supposed Lepra anæsthetica.* By Thomas Buzzard, M.D. *Read April* 22, 1870.

Summary.—A woman, æt. 39, applies for relief on account of fits. She is hoarse, has ptosis of the left eyelid, stunted fingers, with loss of two phalanges, and general shrivelling of nails, anæsthesia and rigid flexion of fingers, atrophy of extensors and interossei of left hand, a white patch on one arm, cicatrices of 'boils' about the body. Symptoms have been gradual for the last 19 years.

Frances E., æt. 39, married, but separated from her husband for 11 years past. One child, a boy, æt. 13, well. Has had no other children. No miscarriages. Domestic occupation. Lives at No. 1, Ryder Street, Gray's Inn Road, and has been there for more than 30 years. Was born within 200 yards of that address.

Her father died at 72. He worked for 50 years at Mr. Huskisson's chemical works, and in the private house attached to these (in Swinton Street) she was born. He had good health except, of late years, suffering much from indigestion.

Her mother died at 55 with dropsy. Neither had any disease of the fingers. Her father had, however, a damaged left index from poisoning with potash. A sister died at 5. She has had four brothers, of whom two are living. Of one of these she knows but little. He had a finger poisoned by lime in the chemical works where he was employed. The other, with whom she lives, enjoys fair health, except that he suffers from occasional bilious attacks. He has lost the last joint of the left index from having poisoned it 14 or 15 years ago at a varnish manufactory. One died of phthisis, one of stricture (?). She has never worked at the chemical works, and has not been exposed in any way to chemical influences.

She went to service in the neighbourhood of her birthplace at about 13 years of age, and lived there three years. During this time she had daily vomiting on rising in the morning, bringing up water or bile or froth. At times she suffered from headache. This morning-sickness has continued ever since, but during the last month, whilst attending at the hospital, it has been much less severe.

She never had rheumatic fever, and she is quite sure she never had any venereal affection. All her life she has been very delicate. Until within the last few years she very frequently vomited her food. Tea especially would cause dreadful retching. She has suffered much from indigestion —pain and retching. During the last 3 years her general health has very much improved. Still at times, but not nearly so often, she has indigestion.

Menstruation began at 16, occurring once, but not recurring for 2 years. It has since been very irregular, sometimes not appearing for 10 months. At about 17 years old she had some pimples or 'boils.' One of these on the left forearm and another on the left side of her face have left white cicatrices. The boils were quite a dozen in number. They appeared in succession during a year; some of them were as large as a shilling. They left sores, which remained open for several weeks and discharged a very watery matter. The cicatrices are rather sunk.

She had fits when a child. Remembers having a very severe one at 8 years of age, but does not know how early they began. They would recur very often, especially under excitement. She would fall, lose her senses for hours, grate her teeth and try to bite, and struggle very much. The fits have continued more or less since. From her brother's

account, these seem to have been frequently of hysterical character. Suffers occasionally from giddiness, and from symptoms resembling 'petit mal.' The last fit was 2 months since (March 1870).

She eats but little meat or vegetables, living mainly on bread and butter or bread and cheese. She has never eaten much fish, and but very little rice indeed.

In 1851, when 20 years old, the right index began to 'gather' at the last phalanx; it was 'lanced several times, and dark blood came away.' She suffered great pain, and her rest was destroyed. In the course of this attack, which lasted about a year, she lost the last phalanx, and the inflammation extended to the palm, which was lanced once and had bluestone applied to it. The tip of the right middle finger next got inflamed (how long after the first she does not remember). It was bad for three months, and was lanced once. A few years afterwards the left thumb became inflamed, and was lanced 13 times. She lost the last joint of it.

Aspect.—She has a round, not unhealthy-looking face, of somewhat sallow complexion. Her body is fairly nourished. She is apparently very cleanly in her person. Her skin presents the white cicatrices already referred to, and on the outside of the left forearm a patch of whitish colour and of irregular shape, measuring perhaps the circumference of a crown. She has hoarseness of the voice, which has existed more or less for 13 years. There is some heaviness about the eyebrows, owing possibly to some thickening in the soft structures covering the superciliary ridges. She has slight ptosis of the left upper eyelid.

When the two upper extremities are stripped and compared it is at once seen that the left is smaller than the right. The decrease in size is found on measurement to be confined entirely to the left forearm and wrist. The upper arms are of equal circumference. At a point 6 inches above the lower end of the ulna the left forearm is three-quarters of an inch less than the right (left=$8\frac{1}{2}''$; right=$9\frac{1}{4}''$). The left wrist measures one-seventh of an inch less in circumference than the right. The arms are of equal length. The atrophy especially concerns the extensors of the fingers and wrist, as evidenced by the flattened, almost hollowed, appearance of the back of the forearm. 'Fibrillary tremor' is very marked in the ball of the right thumb.

The left hand presents that peculiar deformity which has been termed by Duchenne the 'main en griffe,' or 'bird's-claw hand.' The first phalanges are extended, whilst the two last are flexed. The interossei of this hand are much atrophied. There is also wasting of the thenar and hypothenar eminences.

Left Hand.—Thumb.—Only a narrow strip of nail remains, and this is placed at right angles to the long axis of the thumb, its altered position being due to the loss of greater part of the last phalanx. The stump presents a strongly-marked scar, as of an old wound.

On the fingers of this hand, as well as of the other, the nails are dwarfed into strips twice as wide as they are long, the finger-pulp extending much beyond them.

Right Hand.—Thumb.—Nail very short. Skin at extremity very hard and dry. There is a reddish sore-looking spot, exposed apparently by abrasion of the epidermis, which presents around it a sort of laminated appearance.

Index.—The last phalanx has quite disappeared, leaving a hard, dry, and rounded stump, at the end of which is a trace of the nail.

Middle Finger.—Nail very short, flat, almost concave indeed instead of convex, with two transverse ridges. Skin dry and hard.

Ring and Little Fingers.—The nails are very short.

She never has occasion to cut her finger-nails. They grow but little and break off.

The middle, ring, and little finger of this hand are contracted in a flexed state, and cannot be extended. The skin over the middle joint of each is in a thickened, warty condition, and in one case is fissured.

Common Sensibility.—This is very defective in the fingers of each hand, and especially on their dorsal aspect. She complains that she is constantly burning her fingers, as, owing to this defective sensibility, she feels no pain when touched with hot substances. She describes her fingers as feeling like wood, they are so clumsy. She has the greatest difficulty in dressing herself. Appreciation of objects by touch is rather better on the palmar aspect. The defective sensibility appears to extend to a less degree up each forearm. It is most marked on the thumb side of the right hand.

Electro-Muscular Contractility.—This remains undisturbed

in both arms, powerful contractions responding to a moderately strong induced current of Stöhrer's single-cell battery.

Electro-Cutaneous Sensibility.—This is remarkably affected. The wire brush is scarcely felt at all on the dorsal aspect of the fingers of the right hand, and but little on the back of the same forearm. It is more strongly perceived on the inside of the fingers and on the anterior aspect of the right forearm. Compared with the other side, there is deficient sensibility to the wire brush (though not to a great extent) all over the posterior aspect of the right half of the body as far down as the waist. There is defective electro-sensibility over the dorsal aspect of the fingers of the left hand, but not to the same extent as on the right side, and it is but little observed in the forearm.

Spinal Column.—There is both posterior and lateral curvature of the vertebral column in the dorsal region. No tenderness on pressure over any part of the spine.

Feet.—The only peculiarity here is the very small size of the toenails. Sensibility of the skin is unaffected.

Subjective Phenomena.—For some months past the patient has had a tingling all over her. She has frequently shiverings at night. Was never a good sleeper, but for the last 18 months has slept less than ever. At times she perspires very much. She sometimes has great pains in her feet.

Bladder.—She has no power to hold her urine. Even as a child she could not retain it well, but the inability has been greatly increased since her confinement. The instant she wants to void urine it runs from her, and she has not time to go anywhere.

Rectum.—The power of the sphincter ani is not affected.

Nerves of Special Sense.—Taste and smell unaffected. Sight very defective.

Ophthalmoscope.—The patient is hypermetropic. There is no appreciable change in the optic discs.

Hearing.—She has been deaf from childhood in the right ear, and the hearing on the left side is imperfect. Examination of the ears by the otoscope shows nothing remarkable.

Laryngoscope.—Dr. Morell Mackenzie, who was kind enough to examine the larynx with the laryngoscope, says: 'There is no tuberculation of the mucous membrane, but there is undoubted paralysis of the abductor of the right vocal cord (right crico-arytænoideus posticus). There is no anæsthesia of the larynx.'

Heart, lungs, liver, and spleen appear to be in a natural condition. Urine normal.

Remarks.—This patient presented herself at the National Hospital for the Paralysed and Epileptic, Queen Square, to seek relief for fits. On examination, I observed the atrophied state of the left forearm and hand which has been described, and noted, but was unable to explain, the stunted condition of the fingers. My friend Dr. Farquhar, of the Bengal Army, who chanced to be present on the occasion, was struck with the combination of symptoms, and suggested to me that the case was one of Oriental leprosy, of which he had had large experience in India. Acting upon this hint, I examined the patient carefully by the light thus obtained. The result of the examination has seemed to me to confirm the opinion which he expressed. Let me briefly epitomise the symptoms observed in this curious case, and compare them with the characters presented by the disease termed Lepra anæsthetica.

1. Clumsy, stunted fingers, all the nails of which are dwarfed and imperfect. In two of them the last phalanx has disappeared.
2. A certain amount of general cutaneous anæsthesia, especially of the fingers, and notably of their dorsal aspects. This is so marked that the patient voluntarily informed me that she had frequently burnt her fingers without being aware of it.
3. Muscular atrophy of the interossei and thenar muscles of the left hand, as well as diminution in size of the muscles of the corresponding forearm. 'Griffin hand' strongly marked.
4. Rigid flexion of the fingers.
5. A dwarfed state of toenails of both feet.
6. Chronic hoarseness of the voice.
7. Ptosis of the left eyelid.
8. Some thickening of at least the right eyebrow.
9. A white patch on the left forearm.
10. A history of so-called 'boils' which preceded the affection of the fingers, and have left well-marked cicatrices on various parts of the body.

Drs. Danielssen and Boeck* describe very graphically the deformities of the hands in this affection. According to them, a finger will swell, with great pain and fever, presenting after a short time a fluctuating point, which gives way and

* 'Traité de la Spedalskhed.'

discharges a quantity of viscous ichorous fluid. On examining the opening it is found that the cellular tissue as well as a great part of the muscular substance is destroyed, and in consequence the phalanx is not only exposed but detached, so that it can be easily removed. After a longer or shorter period the entire phalanx drops and the ulcer heals, but the finger is sensibly shortened. The process may be repeated in the same or other fingers, or in the toes, and to such an extent that they add: 'These hands and feet so deformed, deprived of their fingers and toes, we cannot better compare than to the paw of the Greenland sea-dog.'

Dr. Carter of Bombay, to whom we are indebted for a most admirable report upon the pathology of leprosy, writes:* 'The progressive interstitial absorption, the most frequent and characteristic mode by which the hands and feet become distorted and partly destroyed, always commences at the ends of the fingers and toes (like the anæsthesia), and it would seem that the terminal phalangeal bone is very early affected. After its removal the altered nail and pulp are transferred by a kind of involution, as it were, to the second segment of the digit.' Although great hyperæsthesia is described by some writers as preceding the cutaneous anæsthesia, this does not appear to be universal. Carter says: 'The local sensations are frequently so slight as to pass unnoticed by the patient, the numbness being then the first symptom observed, and this is often discovered by mere accident; e.g. the fingers and toes are not uncommonly scorched unawares.' †

Danielssen and Boeck say that the anæsthesia following in the site of the hyperæsthesia gets more and more complete. The skin becomes pale, dry, hard in certain places like parchment, and it loses all its elasticity. The sweat secretion is entirely arrested as well as the sebaceous exudation. The anæsthesia extends, and has a tendency to invade the entire body. Carter speaks of 'the extensive benumbed, but otherwise unchanged, surface sometimes noticed on the trunk,' a phase which it will be remembered was noted in the present case. The same author writes: 'Wasting of the deeper-seated tissues and of the muscles supplied by the diseased nerves, with atrophy, flexion, and stiffness of the fingers and toes, ... vesicles, and superficial ulceration, are the chief phenomena which succeed the anæsthesia. The distortion of the

* 'Transactions of the Medical Society of Bombay,' 1860. † Op. cit.

hands is peculiar, the palm being narrowed and concave, the first phalanges being drawn backwards; the two next, flexed, stiff, and claw-like, are also much wasted. The ball of the thumb subsides, and a marked depression exists where the first interosseous muscle should be.' 'Necrosis of the phalanges is not uncommon; it begins at or near the joints, which then become swollen, foul ulcers appear on their dorsal surface, and fragments of bone or a whole phalanx are extruded there.' (Carter.)

The College of Physicians' Report alludes to a dry, fissured state of the skin, and shrivelling of the nails.

Hoarseness of the voice is described by writers on leprosy as also more or less paralysis of cranial nerves. The first symptom exists in the patient under observation, who has besides ptosis of the left eyelid. I do not know whether without my attention having been specially directed to it I should have noted the thickening of this patient's eyebrows, for this is certainly not very marked, but on examination there does appear to be a certain amount of alteration in this respect, and the patient herself thinks that this exists on the right side.

I cannot lay much stress on the existence of skin discoloration in this case. A single whitish patch on the left forearm is the only evidence (if so it can be called) of this phenomenon. I must acknowledge that I have not been able to find in the notes descriptive of cases of leprosy any instance in which the alteration of skin structure was limited to so small an extent. Isolated from the other phenomena it would be quite insufficient to attract attention, but coupled with them it acquires, small as it is, a certain importance.

The existence of cicatrices of various-sized 'boils' deserves more attention. I had noted down their presence before I was aware, from reference to authorities, that the appearance of a crop of bullæ was an early symptom of Lepra anæsthetica. Danielssen and Boeck thus describe this symptom:—'The patient may remain in this state (pale and languid) for months or even years without essential alteration until there appear at some part of the body, especially at the extremities, one or more bullæ of different sizes. They are semi-transparent, and filled with a viscous fluid of yellowish-green colour, leaving an ulcerated surface, which is reddish and painful, and continues for a long time to secrete a viscous humour, which forms a brownish crust. The ulcers, when healed, leave cicatrices slightly sunk in the skin of a shining

whiteness, and they are generally a little less sensitive than the rest of the skin. Although the appearance of pemphigus may take place later on in the disease, these writers have reason from their observations to place it among the prodromata.'

I have thus, by reference to authorities upon the subject of Oriental leprosy, shown how remarkably the group of symptoms with which this woman is affected corresponds with those characteristic of that disorder. How far the concurrence of symptoms alone may be held to be pathognomonic of a certain specific disorder, even when other ordinarily concomitant circumstances, such as climate and locality, are absent, is of course a disputable point. But it is necessary to remember, that although Oriental leprosy at the present time is mainly a disease of tropical climates, it is certainly not confined to them. It is prevalent, as the work of Danielssen and Boeck shows us, in Norway and Iceland. It is met with in Greece and Spain. At San Remo, in Italy, there is at the present moment a leper hospital, in which I am informed that only three weeks ago there were 6 patients, and there were beds for 40. In past times there were numerous leper—or lazar—houses in Great Britain. In the very interesting paper upon Leprosy and Leper Hospitals in England and Scotland, by the late Sir James Y. Simpson,* a list is given of no less than 111 of these institutions, respecting which the author had been able to glean some information. Had sufficient records been preserved of other old hospitals, the individual objects of which were forgotten or unknown, he would probably have been enabled to increase the list to a far greater extent, as there is little doubt that many of them were set aside for the reception of lepers. Leprosy prevailed in nearly every district of Europe from the tenth to the sixteenth century, and Great Britain exhibited its full share of the disease. Even now scarcely a year passes without one or more cases being observed in some part of the United Kingdom. It seems probable, indeed, that the disease still lingers amongst us, in a mild form perhaps, and that we frequently fail to recognise these examples because we are not familiar with the malady in its more severe types. It is certain that from a similar cause isolated cases of scurvy, a disease once terribly fatal in England, are frequently overlooked or misunderstood.

The observations of Danielssen and Boeck, and the singu-

* 'Edinb. Med. and Surg. Journal,' 1841–42.

larly able researches of Dr. Carter of Bombay, seem to show that, whatever may be the essential cause of leprosy, the immediate effects upon nutrition are produced by certain morbid changes undergone by the nerves. These are found excessively swollen, and their sheaths filled with a firm albuminous matter, in which the ultimate nervous filaments are imbedded. This albuminous effusion may also attack the membranes of the brain and spinal cord, and doubtless also the ramifications of the vaso-motor system.

Whether we allow that the case under observation is one of Oriental leprosy or not, it seems to me that the existence of such changes as are found in that disorder will best explain the various scattered paralyses of motion and sensation as well as the local atrophies observed in this woman. And certainly I am not familiar with any common morbid state in England which is characterised by the peculiar group of symptoms with which she is affected. It is worth while, in conclusion, to note that there is a striking history of malnutrition (owing to digestive difficulties) in this patient, and that inadequacy of diet would appear from all experience to be one of the principal factors of Oriental leprosy.

Report on Dr. BUZZARD'S *Case of supposed Lepra anæsthetica. Read April* 22, 1870.

We have carefully examined the patient, Frances E., whose case was brought before the Society by Dr. Buzzard, and we can confirm the general accuracy of the report which he has placed in our hands.

The main features of the case may be briefly expressed in the statement that, within the last nineteen years, one thumb and several of the fingers have in succession undergone shortening in consequence of inflammation attended with suppuration, and (twice, at least) exfoliation of a terminal phalanx; that several groups of muscles of the forearms and hands (especially on the left side) present impaired power, with marked wasting, and some fibrillary tremor; that there is considerable loss of sensation in the forearms and hands; and that the fingers are to some extent contracted.

The most important question in regard to this interesting case concerns the suggestion that the association of the various symptoms above enumerated may perhaps be explained by the disease being regarded as a modification of leprosy.

In reference to this suggestion, we think it of moment to observe that in the case of F. E. the shortening of the fingers was the result of a process of inflammation requiring repeated surgical incisions, and attended with necrosis of the phalanges; whereas in leprosy we believe that it most frequently occurs rather by a gradual absorption, or by ulceration and detachment. The contraction of the fingers in Dr. Buzzard's patient may have been due in part to spreading of inflammation into the palm; in part to the uncompensated action of the flexor muscles, owing to the loss of power in the extensors.

Again, the view above referred to appears not to accord with the existence of paralysis in the case of F. E. In the Report on Leprosy, prepared by the College of Physicians, we have found no mention of paralysis or muscular wasting; and although Dr. H. V. Carter describes such a condition as occasionally present in the cases which he observed, it seems to have been simply a result of disease of the nerve-trunks supplying the affected muscles. It is true that, on the other hand, anæsthesia forms no part of ordinary cases of muscular atrophy—the disease (among recognised diseases) to which the case under consideration appears most nearly to approach. But we believe that in practice cases of wasting palsy are not uncommon, in which the symptoms deviate considerably from the established characters of that disease.

Hence, while we fully recognise the difficulty of referring Dr. Buzzard's case to any affection belonging to the ordinary categories, we consider the history and symptoms insufficiently conclusive to allow of our reporting it as a case of modified leprosy.

George W. Callender.
C. Hilton Fagge, M.D.

XXXIV.—*Spontaneous Necrosis and Separation of a portion of the Skull and Scalp.* By Thomas Smith. *Read April* 22, 1870.

Annie C., æt. 9, a country child. In the summer of 1868 fell into the water, and wore her wet bonnet while exposed to a hot sun for the rest of the day. This was followed by an attack of erysipelas, terminating in abscess, which spontaneously discharged itself.

In March 1869 a large piece of bone came away from her skull, bringing with it a corresponding portion of the hairy scalp.

The child had five convulsion fits soon after the swelling on her head first appeared, but she has never suffered from any form or degree of paralysis.

April 1870.—At the present time there is a considerable deficiency in the vault of the skull, measuring $2\frac{1}{2}$ inches by $3\frac{1}{4}$ inches. This is partly covered by thin shining scar tissues without a vestige of hair; in the centre is a shallow ulcer that is slowly healing. The margins of the opening in the bone are levelled off and fused into the scar tissue. The movements of the brain are plainly to be seen and felt. The child does not seem to be deficient in intellect, though she appears to be ill-nourished and languid.

The portion of necrosed bone consists of both tables of the skull, though there is more of the outer than of the inner table; it measures $2\frac{1}{2}$ inches by 3 inches; it is nearly circular in shape, and has on its inner surface rather more than two inches of the bony groove of the longitudinal sinus; three-fourths of the bone are formed by the left parietal and one-fourth by the right.

On the outer surface the bone is covered by the hairy scalp, which extends almost up to the margin of the bone, and is limited by an abrupt edge. The hair is thick and healthy, and has been cut short.

The only circumstance connected with this case that justifies me in bringing it before the Society is the fact that the necrosis involves both the skull and the scalp to the same extent. In the ordinary course of necrosis, and particularly in that form to which the term exfoliation is distinctively applied, the separation of the superjacent soft parts is either one of the earliest indications of necrosis or it precedes

and perhaps occasions the necrosis. Here, however, it would seem as if the death of the bone had been sudden, and coincident with that of the superjacent scalp. The appearance of the specimen would warrant the inference that both skull and scalp had perished as the result of a blow; there is, however, no history of any such injury.

XXXV.—*Case of Atrophy of the Brain; great depression of temperature several days before death.* By Edward Headlam Greenhow, M.D. *Read May* 13, 1870.

William G., æt. 52, a tailor by occupation, was admitted into the Middlesex Hospital under my care, October 12, 1869.

Previous History.—Patient's father died suddenly of apoplexy; mother still alive and healthy. Patient had been addicted to drinking, more particularly of late, but had been on the whole a healthy man until two years ago, when he had an attack of bronchitis. In the August following he had an attack of pain and swelling in both hands, which was said to be rheumatic gout. His general health has been failing for the last three months. At first he began to lose power in the lower limbs, and complained of pain in the loins. His memory became gradually impaired, and for a week or ten days past he has been somewhat incoherent. The loss of power in the lower extremities had increased rapidly of late.

State on Admission.—Patient can neither stand nor walk without assistance. He is a rather short, stout man, with a soft, fair skin and slightly sallow complexion, and looks several years older than his stated age. Is dull and heavy, answering questions in a slow incoherent manner, and has a vacant idiotic smile when he speaks. The conjunctivæ are slightly jaundiced; the pupils equal in size but contracted to the size of pin-holes; there is no strabismus. Complains of vertigo, but has not suffered from headache. There is loss of muscular power both in the hands and lower extremities, but no paralysis; for patient can move both legs and arms in any direction, and can readily take hold of

an object with either hand. Common sensation is unimpaired in both the upper and lower limbs, and he is quite sensible to tickling on the soles of the feet, to pricking with a pin or to the temperature of a hot sponge. Abdomen somewhat tympanitic; area of hepatic dulness normal. Tongue clean and dry; bowels loose. Urine scanty, acid, high-coloured, sp. g. 1019; contains neither albumen, sugar, bile, nor bile acids, but deposits lithates on cooling. Pulse 74, small and regular. Temperature in the axilla 98° F. Ordered 2 oz. of brandy daily.

Progress of Case.—October 15. Has been restless and delirious at night and almost constantly asleep during the daytime. When awake is quite incoherent and unable to give a relevant answer to any question, but moves his limbs, and puts out his tongue when desired to do so. Has occasional convulsive twitchings of the right side of face. Takes liquid food and stimulants freely, but will not eat solids. Passed 32 oz. of urine in the 24 hours up to last evening, but has been passing it in bed during the night. Pulse 82, very compressible. Temperature in axilla 97·8° F.

16.—Restless and noisy during the night, constantly asleep in the day. Passes urine and stools in bed. Pulse 85, irregular. Temperature in axilla, 97·3°. Ordered 4 oz. of brandy, hot bottle to feet, and additional blanket.

17.—Pupils less contracted. Pulse 88. Temperature in axilla 95·5° F.

18.—Delirious and wakeful at night, but mostly asleep by day. Pulse 46. Temperature 92·8° F. Six oz. of brandy daily.

19.—Patient when awake is constantly muttering and acting as if he saw objects round his bed. Is quite unaware that he is in hospital, and when spoken to replied that he would go to work to-morrow, but when questioned can give no coherent answers. He can still, when desired, put out his tongue and move both his upper and lower limbs freely. Pupils somewhat contracted. Pulse 52. Temperature in left axilla 90·2° F., in right axilla 91·7° F.

8.30 P.M.—Temperature in left axilla 87·3° F., in right axilla 89° F., in rectum 89·3° F.

20.—Pulse 48. Respirations 14. Temperature in left axilla 84·5° F., in right axilla 85° F., in rectum 85·3° F.

5.40 P.M.—Breathing somewhat stertorous, swallows with difficulty. Left side of mouth droops slightly. Pulse 55. Respirations 12. Temperature neglected to be taken at the usual time this evening.

21.—9.30 A.M.—Lies in a semi-comatose condition and is difficult to rouse, but can move his limbs freely when roused, and sensation does not appear to be impaired. Has not passed urine for 24 hours. Pulse 56; respirations 14. Mucous rattles in both lungs. Temperature in left axilla 84° F., in right axilla 84·7° F., and in rectum 85° F.

7.30 P.M.—Is evidently sinking. Temperature in left axilla 84·8° F., in right axilla 85° F.

10 P.M.—Pulse 66. Respirations 18. Temperature in left axilla 85° F., in right axilla 85·3° F. Died at 11.30 P.M.

Post-mortem Examination.—The autopsy was made fifteen hours after death. The body was stout and well nourished, and there was a thick layer of sub-cutaneous fat everywhere. There was also a great accumulation of fat around all the viscera. The skull-cap was rather thick, and on its removal a quantity of clear, serous fluid slightly tinged with blood escaped from the cavity of the cranium. The sub-arachnoid space was also filled with similar clear fluid; the whole quantity collected amounting to upwards of 16 oz. Fluid of the same character also escaped from the spinal canal. The arachnoid membrane covering the brain was everywhere thickened, and in places opaque and white. The convolutions of the brain had a slightly flattened appearance, and the intervening spaces were broad. No lymph was seen anywhere. The brain-substance was moderately firm and free from congestion. The pacchionian bodies were very numerous and greatly enlarged. The vessels at the base of the brain were slightly atheromatous. The lateral ventricles contained about three drachms of clear, slightly albuminous fluid. Portions taken from the upper part of the brain were carefully examined under the microscope by Dr. Cayley, and found to be normal in every respect. Unfortunately, no microscopical examination was made of the medulla oblongata or of the base of the brain. The heart was healthy, but the aorta and the aortic and mitral valves were slightly atheromatous, and the arch of the aorta was somewhat dilated. The liver and kidneys were healthy.

Treatment.—It was obvious from the first that treatment could be of little avail in such a case. Small doses of iodide of potassium with ammonia were administered during the earlier days whilst the patient could be induced to take medicine, but these and simple aperients, with brandy in increasing quantities as the depression of temperature became more marked, were the only remedies used.

Remarks.—I am induced to bring this imperfect case before the Society on account of the very remarkable progressive fall of temperature observed during several days before death. In this respect the case, so far as my experience goes, is quite unique. The depression of temperature in the cold stage of cholera is indeed said to be as great, and sometimes even greater than was recorded in this case, but it supervenes suddenly and its duration is rarely prolonged beyond eighteen or twenty hours, when it terminates either in death or reaction. On the other hand, although in several diseases a considerable fall of temperature is frequently observed before death, I have never noted the depression as being nearly so great, nor as beginning nearly so long before death, as in the case under consideration. Moreover in such cases the fall of temperature usually begins coincidently with other symptoms of impending dissolution; whereas in this case the gradual progressive fall began six days before death, and was for several days the only indication of its near approach. The functions of respiration were efficiently performed, and food and stimulants were freely taken, until within a few hours of the close of life, and the prognosis of impending death in the case was formed solely on the presumption that so great and progressive a loss of animal heat was incompatible with a continuance of life.

In some of its general symptoms the case was not unlike the last stage of the condition known as general paralysis of the insane; there was the same progressive loss of intelligence and of locomotive power, though less impairment of the power of distinct speech than usually occurs in that disease. There was, however, no history either of mania or of any other form of insanity in the case, and the patient, though gradually failing in mind and body, had been able to continue his occupation until a very short time before his admission into hospital. The true pathological cause of the atrophy of the brain was in all probability the atheromatous condition of the cerebral arteries, leading to imperfect nutrition of that organ.

It may, perhaps, be well to mention, in conclusion, that the observations of temperature were made with a thermometer in daily use, and which was at the same time marking temperatures of 103° to 105° F. in cases of fever at that moment in the wards.

XXXVI.—*A Case of Epileptiform Stupor in a Child, successfully treated with Bromide of Potassium.* By W. B. Kesteven. *Read May* 13, 1870.

THE following case is that of the child of one of my medical neighbours. It presents one of the forms of partial or imperfect epilepsy which not unfrequently puzzle the medical attendant, and not without reason excite much alarm in the minds of parents—none the less when, as in the present instance, the father is a member of our profession. We regarded the case as one of obscure epileptic disease, from the obviously disturbed condition of the brain and nervous centres, as shown by unusual irritability of temper, and the occurrence of night terrors; from the suddenness of the attack, the characteristic stupor, and its equally sudden passing off. Our opinion, it seems, has been borne out by the result of treatment, the symptoms having entirely disappeared.

A. W. G. C., æt. two years, with twenty teeth, a healthy, well-developed, intelligent, and rather an excitable child; has always enjoyed very good health. About Christmas last he was noticed to be more excitable than usual, and would sometimes awake in the night screaming violently, without any assignable cause, falling off to sleep again immediately the screaming subsided. About the end of January last the following kind of attack was observed to occur every afternoon about three o'clock:—After being very irritable and cross for a time varying from a few minutes to half an hour, and complaining of pain in his head, usually about the occiput, he would assume a position either on the floor or on his mother's lap, so as to have his head hanging down (this position was invariable), and then pass into a state of semi-consciousness, which on a few occasions lasted for three or four hours, with more or less completeness, but usually for only about half an hour, or even a few minutes. From these states he aroused suddenly, resumed his play, and seemed happy and free from pain. If he could not get on the lap when the attack was imminent, he would kneel down on the floor and put his head down on to the carpet, always arranging to have his head lower than his body. In all other respects he seemed quite well. His appetite was unnaturally craving; he would take stale dry bread

off the table and eat it whenever he saw it. During the worst period of his illness he usually awoke in the morning cheerful, but languid, and frequently tottered in his gait, and would walk raised on the tips of his toes. After a good mid-day sleep he soon became irritable and excitable, and during the whole afternoon, from about 1 to 7 P.M., he repeatedly relapsed into a semi-conscious state. These attacks continued for about a month, occurring several times a day; and sometimes in the night he awoke complaining of pain in the back of his head and lower part of the spine, and would then go off into a screaming-fit for a few minutes, when all seemed to pass off, and he went quietly to sleep. At this time, too, though previously a clean child, he wetted his bed several times in each night.

On February 8th I saw him, and found him playing about in the room, apparently well; when suddenly he went to his mother and laid himself down on her lap in the position above described, and became so far unconscious that he paid no attention to a shrill whistle blown in his ear for some time, but on his recovery it was evident that he remembered the fact when asked about it. By my advice, he began taking three-grain doses of bromide of potassium three times a day, which almost at once checked the fully developed attacks; but the restlessness and irritability which preceded and followed them came on at intervals, and passed away without the loss of consciousness. After taking an increased dose of five grains for a few days, he had an attack of diarrhœa, when vinum ferri was substituted for the bromide. The bromide being discontinued the attacks returned in a milder form, and the drug was then combined with vinum ferri. Under this treatment he has steadily improved, and although he still has occasional attacks of the irritability, and sometimes complains of headache, he has no definite attacks, and appears to be in excellent health. Any extra excitement, such as music, of which he is extremely fond, is followed by restless nights, and sometimes by a screaming attack. While the attacks were frequent, his temper was at times very violent, and for a few moments he would look absolutely viciously at his sisters. All these signs of irritability have now entirely subsided.

XXXVII.—*Report of the Committee on Temperature in Syphilis. Read May* 27, 1870.

A PERUSAL of the literature of the subject shows that the question has been handled in various aspects; first by Dr. Edward Guntz,* secondly by Lancereaux,† thirdly by Mr. Berkeley Hill.‡ The attention of Dr. Guntz was chiefly directed to the pyrexia accompanying the onset of constitutional symptoms. He found the early eruptive stage to be accompanied or preceded by a considerable rise of temperature. This, which he calls a syphilitic fever, can sometimes only be made out by the thermometer. In other instances, malaise, headache, and other signs of a febrile state, may be the first symptoms. He has occasionally even met with a violent shivering fit. The mercury may, within the first twenty-four hours, reach 103½° F. On the second day a considerable fall usually occurs. A slighter elevation with evening exacerbations may, however, continue for a long time, and fresh rises of temperature may coincide with the extension of skin eruptions.

There is no constant relation between the intensity of the fever and the amount of eruption on the skin. The period at which this syphilitic fever occurred was found by Dr. Guntz to be within fifty and sixty-five days from the date of infection, when no active treatment had been used. But no fever appeared within or even beyond that period if mercury had been from the beginning employed, either internally or by frictions. Later forms of syphilitic exanthema may also be accompanied by a rise of temperature, but this pyrexia has no reference to the fever of the eruptive stage.

Lancereaux remarks that the pyrexia in the eruptive stage of syphilis is sometimes associated with repeated rigors. These may assume an intermittent type, quotidian, tertian, or double tertian. He has observed several cases of this kind. It does not, however, appear that the thermometer was employed. This intermittent type of pyrexia, to which the remarks of Lancereaux and also of Mr. Hill chiefly refer, occurs chiefly in the later stages of syphilis, and mostly where there are evidences of a deep cachexia.

* Dr. Ed. Guntz: 'Das syphilitische Fieber.' Zeitschrift für Medicin, von Dr. Küchenmeister u. Pross. Neue Folge iv., pp. 192 and 362. 1865.

† Lancereaux: 'On Syphilis.' New Sydenham edition, vol. i. p. 129.

‡ Berkeley Hill: 'On Syphilis and Local Venereal Disorders,' p. 87.

Passing on to their own observations, your Committee started from the points proposed last year, viz., whether variations in temperature might afford any clue to the differential diagnosis of syphilitic affections about bones and joints from the various forms of febrile rheumatism and from pyæmia. They therefore set themselves to determine, first, whether any rise of temperature took place in syphilitic periostitis, and in affections about joints, sufficiently constant to justify the name of syphilitic fever; secondly, whether this presented variations of temperature sufficiently distinct and regular to afford any tangible character so as to contrast with the curves of acute rheumatism and pyæmia; thirdly, whether any inference could be drawn from the effects of treatment; fourthly, the value of permanent or intercurrent disease in modifying the curves observed.

Your Committee regret that they have experienced greater difficulty in procuring trustworthy material than they had anticipated. They therefore especially wish this Report to be regarded only as a preliminary step in the inquiry.

Exclusive of the cases already published in the 'Transactions' of the Society, nine tolerably typical cases of syphilitic rheumatism have been collected. Of these eight had more or less fever; one no pyrexia. Of the eight febrile cases, five presented great nocturnal exacerbations, varying from $2\frac{1}{2}°$ to 4° F.; thus coinciding with the cases referred to by Dr. Garrod and Dr. Duffin, as characteristic of this form. One case presented nocturnal exacerbations averaging $1\frac{1}{2}°$; thus falling within the temperature limits of ordinary acute rheumatism. A seventh presented great oscillations for three days, and then subsided to the normal limits spontaneously. The curve in the eighth presented nothing characteristic. One of the cases had previously been exposed to malarious influences. In a second a suspicion of pulmonary phthisis existed, but was subsequently disproved. In a third there was albuminuria. Your Committee are, however, of opinion that these influences had little or no effect on the curves observed. In confirmation of this, they beg to refer to the more detailed reports of the cases as presented to the Society.

The conclusions which the facts at present available seem to justify are—First, that syphilitic periostitis is usually accompanied by fever. Secondly, that, 'cæteris paribus,' the intensity of the fever will be proportionate to the amount of joint or periosteal affection. Thirdly, that nocturnal exacerbations

will then exist varying from one to four degrees, with a corresponding morning fall; where, however, rheumatoid symptoms are associated with an early outbreak of macular or papular syphilis, although fever exists, the rule of oscillation does not obtain. Fourthly, that the point touched by the morning temperature will be the normal or slightly above the normal limit, subnormal ranges being seldom reached unless there be marked general amendment. Fifthly, that the fever thus characterised is rebellious to any but a specific treatment. Sixthly, that iodide of potassium generally affects the curve within three days from its administration in sufficient dose. The most protracted case noted began to yield on the fifth day. Where the dose of iodide is too small, the curve may be partially affected; a more marked fall ensuing if the dose be increased; seventhly, if the iodide be withdrawn prematurely the temperature curve soon resumes its previous height. In two of the cases where a mixed affection was to be presumed, the steady action of the iodide asserted itself. In two others, where there were doubts as to the early diagnosis, the action of the drug seemed to clear them.

As a contrast to these cases of syphilitic rheumatism, your Committee beg to submit a case of rheumatic fever complicated by an outbreak of macular syphilis and mucous tubercles. The daily thermometric variations rarely exceeded a degree, and were quite unaffected by the iodide of potassium. The relapses and remissions took no tinge from the syphilide. A temperature table from a typical case of pyæmia is also appended. The great oscillations presented by the latter strongly resemble those noted in the syphilitic rheumatisms. Nevertheless, the rapid action of the iodide of potassium might in a doubtful case acquire considerable diagnostic value.

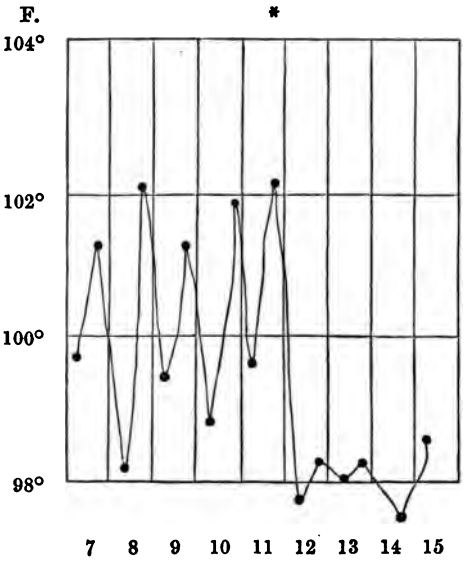
Extending their observations to other forms of constitutional syphilis, your Committee have collected nine instances. These, for convenience sake, they have divided into the ulcerating, papular, and macular varieties. In two out of three examples of the ulcerating form they found febrile temperature, but in only one was anything approaching to characteristic oscillation observed. This was a case of peculiar interest. Three outbreaks of syphilis were noted, each with fever and thermometric oscillations. The two first of these exhibited the signs of severe bronchitis. The bronchitis and syphilide seemed to subside simultaneously. The third attack had no bronchitis, but manifested the same variations

of temperature as the others. The case ultimately got well under the prolonged use of iodide of potassium. Was the bronchitis in this instance specific?

In only one case of papular or macular syphilis was any change of temperature observed. This was in a young man with an acute and early outburst. Headache and general malaise preceded the rash by about three days. The case followed very much the course described by Dr. Guntz. In all the rest the temperature limits did not exceed those of ordinary health.

CHRISTIAN BÄUMLER, M.D.
ALFRED B. DUFFIN, M.D.
BERKELEY HILL.

The following cases are selected to illustrate this Report. Each is accompanied by a temperature table showing the most striking change observed. The first table illustrates Dr. Duffin's case No. II., in last year's volume of the 'Transactions,' p. 82. The second refers also to a case of pure syphi-



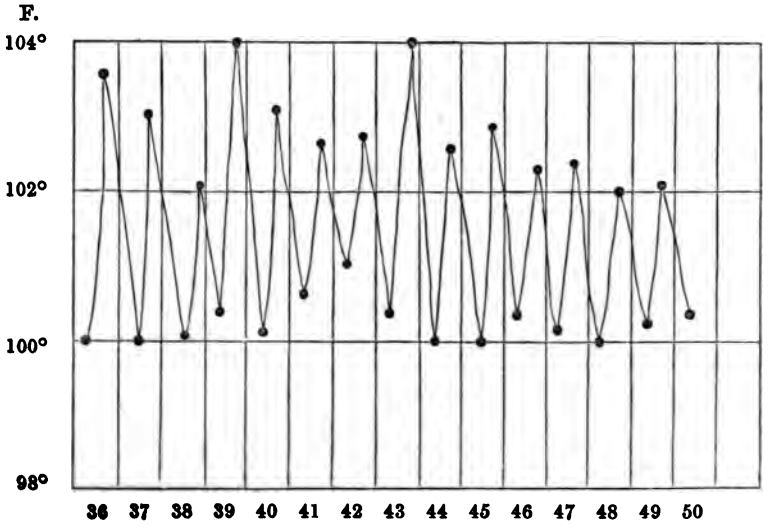
* Iodide of potassium, gr. v. ter die.

litic rheumatism. The third illustrates the diagnostic value of iodide of potassium in suspected tubercle. The fourth shows

the effect of the premature withdrawal of the iodide. The last is the case of syphilis complicated with recurring bronchitis, alluded to in the Report. Two portions of the temperature table are selected; the first illustrating the second attack of bronchitis, the second the final outburst of syphilis, and the entrance into convalescence. The numbers at the foot of each table indicate the days of residence in hospital. The scale used is that of Fahrenheit.

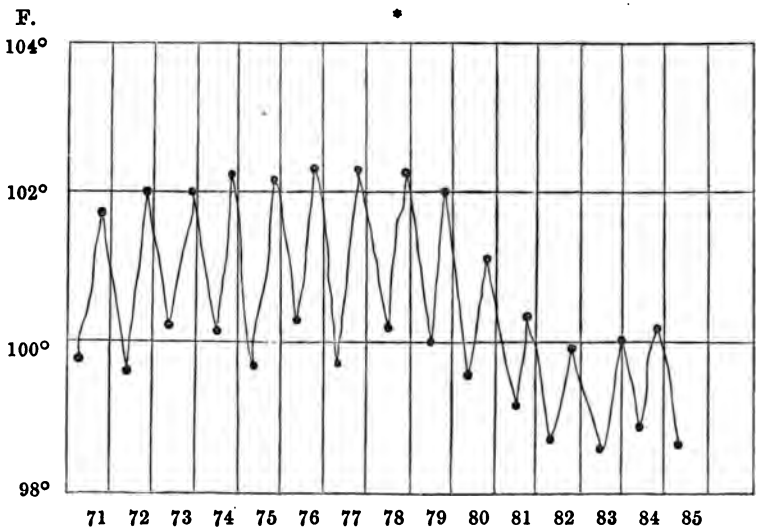
CASE I.—*Ulcerating Syphilide with severe Bronchitis (? syphilitic).*

MINA E., æt. 29, admitted to German Hospital, March 22, 1865, with smart fever and sore-throat. There was a round deep ulcer of the size of a pea behind the left posterior arch of the soft palate. The mucous membrane was very red round the ulcer, but otherwise quite normal. There were symptoms of severe bronchitis, and circumscribed infil-



trations of the left lung. The region of splenic dulness was increased. No history of syphilis could be obtained, but on h thighs and labia were numerous circular, pale, smooth surrounded by a narrow border of pigment. Inguinal slightly enlarged, cervical ones hard and small. Now

and then a trace of albumen in the urine. The temperature high; showed evening rises of about 2° F., the morning average being 100° F. This decreased during April, when the chest symptoms disappeared, and the throat began to heal. During the second week of April, however, fresh symptoms of bronchitis set in, accompanied by a fresh rise of temperature similar to the first. A furuncle formed on the leg, and soon became an annular ulcer, spreading slowly at its circumference whilst healing at its centre. In the second half of May the chest symptoms amended, the ulcer in the throat began to heal, and the temperature receded to



* Iodide of potassium first given.

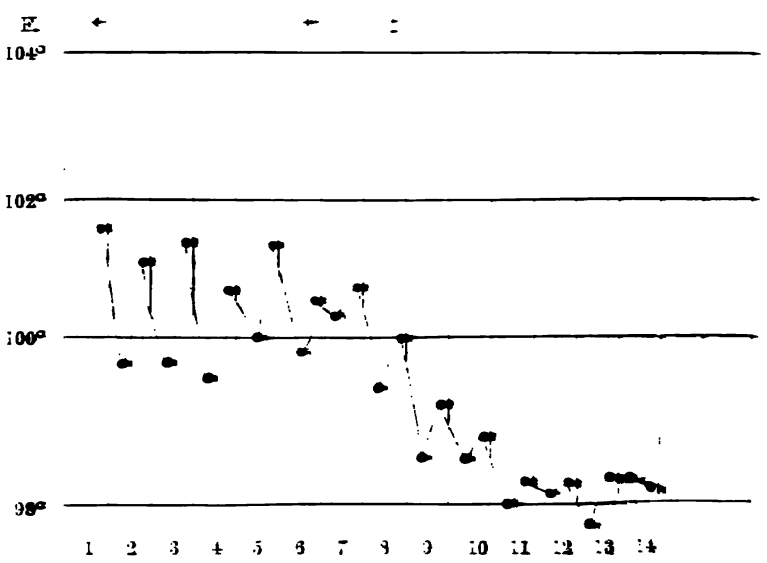
the same range which it had shown in April. It continued thus until the second week in June, when a fresh increase of the evening temperature took place coincident with the spreading of two small ulcers on the right shoulder and left elbow. These ulcers had the same characters as that on the leg. At the same time perforation of the septum narium occurred. The treatment hitherto had consisted in the administration of chlorate of potash and quinine.

On June 13 (78th day of residence in hospital) iodide of potassium was first ordered, and from that day the temperature gradually sank, reaching the normal range four days

later. On the 15th iodine could be detected in the urine. The temperature then kept normal till the 23rd, when slight fluctuations not exceeding 101·3° were noticed. By the end of June all the ulcers had healed. The chest symptoms varied a good deal. The iodide was omitted for a few days and again resumed. The thermometrical observations were continued during July, and found to range between 98·4° and 100° F.

Case II.—*Syphilitic Rheumatism.*

Thomas C. admitted into King's College Hospital, January 5, 1869. Chancre four years previously, followed by sore-throat

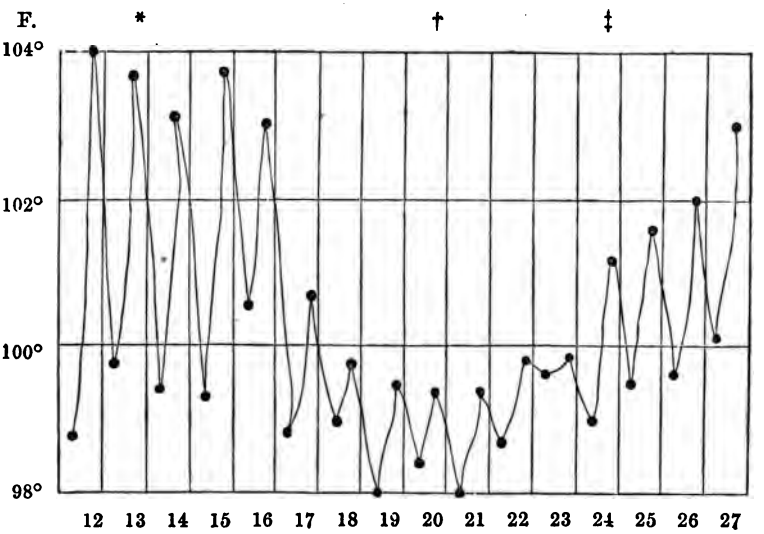


eighteen months later indefinite attack of rheumatism and sloughs of bones. This lasted seven [illegible] intercurrent attack of ulcerated sore-throat, had distinct nocturnal exacerbations, frequent returns of this drove him first to [illegible] Hospital in Lincolnshire, then to St. [illegible], lastly to King's College Hospital.

On Admission.—The right malar bone and right olecranon tender; head of radius also painful. Evidences of fluid in the left elbow-joint, and in the right knee-joint. Patches of the scalp were found tender. Extensive lymphatic enlargement, and the hepatic dulness slightly increased. He was observed for a week on no treatment. During that time his temperature varied from 99⅗° to 101¼°. There was each night an exacerbation varying from 1½° to 2°. At the end of that time a papular rash appeared on the extensor surface of the right forearm. Fifteen grains of iodide of potassium were then administered daily. In the course of the ensuing week a very marked declension of the temperature occurred, ranging over four days, and amounting in all to 4°. Six hours' sleep were obtained each night, and the symptoms totally subsided. Case observed fifteen days.

Case III.

Henrietta L., admitted into the German Hospital, August 23, 1865. No information respecting primary or secondary symptoms.



* Iodide of potassium.
† Reaction of iodine in urine. Iodide discontinued.
‡ Reaction of iodine in urine ceased.

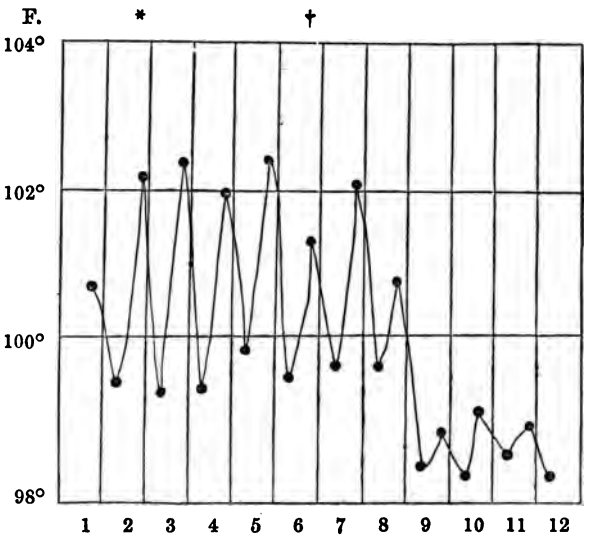
On Admission.—Hard palate perforated, and offensive ozæna. Both knees and ankle-joints, both elbows, and the left wrist and shoulder-joint were painful and swollen. Three days later a faint cardiac murmur suspected, but entirely vanished at the end of eight days. Albuminaria also appeared ten days after admission and continued. The temperature range during the first fortnight exhibited great nocturnal increments, as much as five degrees being noted, with an average of three. On the 11th day iodide of potassium was administered. On the 15th day the temperature was greatly steadied. Eight days after taking the iodide its reaction was found in the urine. As diarrhœa had simultaneously appeared, the mixture was discontinued. Four days later the iodine reaction ceased to be observed in the urine, and on the fifth day the temperature again ascended and began to oscillate as at first. She was discharged at her own request 28 days after admission.

The value of the evidence in this case is somewhat diminished by the scantiness of the evidence of syphilis, and by the presence of cardiac and renal complications. The effect of the iodide of potassium upon the temperature is, however, most remarkable. The curves observed harmonize very closely with those presumed to be characteristic.

Case IV.

A. S., admitted into the German Hospital, January 19, 1865. Syphilis of unknown duration. Small node on the right frontal bone, one on the right tibia, and a hard swelling on left ditto. Pain in the right knee, and along the inner side of right thigh. Aspect phthisical, but, except slight dulness below the right clavicle, there was nothing to confirm this. Fever remittent, with nocturnal exacerbations of 3°–4° F.; the morning temperatures being almost normal. Quinine in five-grain doses had no effect on the temperature, but two days after iodide of potassium in full doses had been given the temperature fell to the normal standard and remained there, whilst the periosteal symptoms disappeared. A fortnight after he had left the hospital the periosteal swellings had quite gone. A year later he was re-admitted with necrosis of the tibia and swelling of the testicle. After another year and a half he came in again with dysentery, albuminuria, and disease of the right lung. He died August 1867.

Cheesy hepatization of the right lung was found, without tubercles; albuminous degeneration of the liver, spleen, and



* Quinine, gr. v. ter. die.
† Iodide of potassium, gr. v. ter. die.

kidneys was also found, together with ulceration of the colon.

The suspicion of tubercle in this case rendered the speedy effect of the iodide of potassium most valuable. It leaves no doubt that the fever was entirely due to the periostitis, and negatived the idea of active changes then going on in the lung.

XXXVIII.—*Two Cases of Obstruction of the Œsophagus, treated by mechanical means.* By Morell Mackenzie, M.D. *Read May* 13, 1870.

THESE cases are brought forward, because although very little has been written on the subject, there is an undue prejudice against mechanical treatment. Since Sir Everard Home recommended this method, no progress has been made, and it is probable that at the present time the majority of hospital surgeons are opposed to the employment of mechanical means. Tracing this negative treatment to its origin, it appears to have been founded on the doctrine put forward by eminent pathologists a few years ago, that all cases of œsophageal obstruction were in fact cases of cancer. The doctrines concerning malignant disease have, however, undergone so much modification during the last few years, that it is probable that treatment will also undergo a change. While opposed to mechanical treatment in cases of open ulceration, I think there remain a certain number of cases, of which the two following are good examples, in which mechanical treatment may be adopted with advantage:—

Case I.—*Obstruction of the Œsophagus from thickening of the walls of that tube immediately below the level of the Cricoid Cartilage.*

William B., aged 58, a short, thickset man, engaged as a messenger, applied at the Hospital for Diseases of the Throat, in March, 1868, on account of difficulty in swallowing. He stated that he had enjoyed good health until he was 46 years old, when he had an attack of rheumatic fever; two years later he suffered again from the same disease, but had not since been particularly subject to rheumatism.

Four or five years ago he first noticed difficulty in swallowing. Not feeling any pain, he did not think seriously of it; but the difficulty steadily increased, and in September 1860 he first sought medical advice. Gargles and medicine were prescribed, but without benefit. The patient states that he had never suffered from any venereal disease. The

family history was very good, both parents having lived to the age of 76, and all their children being still alive.

His state on admission was as follows:—He was very thin and weighed only 7 st. 12 lbs.; skin moist and cool; urine healthy; fæces watery, with little solid matter. He could not swallow solids at all; he chewed his food, and swallowed the juice, but had to spit out the solid residue. Liquids could only be taken in sips. Frothy saliva was constantly coming into his mouth. The respiratory and circulatory organs were in a normal condition.

Several attempts were made to pass bougies unsuccessfully, and it was not till the third occasion that a bougie of No. 6 size could be passed. At the end of a fortnight a No. 10 bougie could be passed, and at the beginning of June a No. 12 was passed without difficulty. At the end of a year he was able to eat his dinner by cutting the meat into small pieces. During the twelve months that he had been under observation, he had occasionally relapsed when he had remained away from the hospital for more than a month.

He is now able to eat solid food without any sense of obstruction. The alvine evacuations are of normal consistence. He has gained flesh, and now weighs 10 st. 4½ lbs., being an increase of 2 st. 6½ lbs. in his weight since first seen.

The circumstances of this somewhat remarkable case are well known to Dr. John Ogle of St. George's Hospital.

Case II. — *Traumatic Stricture of the Œsophagus, relieved by a dilator.*

William R., a joiner, aged 25, applied at the Hospital for Diseases of the Throat, in February 1869, on account of dysphagia.

Solids could not be taken at all, and liquids only with great difficulty.

The history of the case was that eleven years previously (April 1838) he had accidentally swallowed a mouthful of soap-lees. At the time he suffered from a burning pain in the stomach and chest, and was treated with emetics. He recovered, however, in about two months, but was not able to swallow solids. He suffered constantly from dysphagia till February 1868, when he noticed that he was getting worse, and after seeing several practitioners, applied to me

in February 1869. A very tight stricture was found on a level with the sternal notch. At the first visit only a No. 5 bougie could be passed, but at the end of three months a No. 11 was introduced without difficulty. The patient then discontinued attendance.

In January 1870 he again applied, and on this occasion was admitted as an in-patient. A No. 7 only could now be passed; bougies of increasing size were passed very frequently, and at the beginning of March a No. 10 could be introduced. On March 14, the 'œsophageal dilator' was first used, and the œsophagus dilated from size No. 10 to size No. 14. After this dilator had been used, a bougie of the latter size was passed several times till the middle of April, when a larger dilator was used, and the stricture stretched to No. 17. Since then a No. 16 has been occasionally passed without difficulty. The patient now swallows well.

The dilator consists, for the greater part of its length, of a hollow gum-elastic tube, but at or near its termination the gum-elastic is substituted by a piece of hard rubber with four slits in its sides. A long piece of wire, having at its lower end a kind of miniature bolt, is contained in the tube, where it rests just above the commencement of the hard rubber portion. At the upper end of the wire is a little handle with a button and regulating guage. By pressing on the handle the bolt is shot into the hard rubber portion, the sides expand, and the dilatation is effected.

The advantage of the dilator is—first, that time is gained, a matter of great importance where there is much inanition; and secondly, that dilatation can be more easily effected by an instrument specially made for the purpose than by the employment of conical bougies, or bougies of graduated and increasing size. I venture to hope that the instrument, or a modification of it, may be useful in cases of traumatic stricture and in some cases of fibrous thickening.

XXXIX.—*A Case of Necrosis of the Femur, without external inflammation.* By James Paget. *Read May 27, 1870.*

Emma L., aged 19, a general servant, was admitted into St. Bartholomew's Hospital, under my care, on October 12, 1869. She was well nourished and muscular, and, except in being rather pale, looked healthy. Her complaint was of severe pain in the left knee, for which she had been under treatment for a month. Her mother died of heart-disease, her father was rheumatic; she herself had been healthy till this pain in the knee set in.

The knee-joint was very slightly swollen, with fluid in its cavity, but not hot or tender. What seemed more important was that a hard swelling, of which the patient knew nothing, nearly surrounded the middle of the shaft of the femur. This swelling felt of nearly oval form, about six inches in length—it was in every part very firm and tense; hard pressure on it was painful, especially at its middle part. All the textures of the thigh appeared quite healthy; no part of it felt hotter than another; no veins or lymph-glands were enlarged. The pulse was rather quick, but the breathing and temperature appeared natural; there were no signs of fever or general disturbance, and but for the pain of her knee the patient would have thought herself well. She could give no account of the swelling round the femur, except that it might be due to her frequently breaking thick pieces of wood across her thigh.

In the belief that the swelling round the femur was due to periostitis, the patient was directed to remain always in bed, to take three grains of iodide of potassium three times a day, and meat diet; blisters also were to be applied over the swelling often enough to maintain a constant slight inflammation of the skin.

At first some benefit seemed to be derived from the treatment: the swelling became rather less and was not so tender on pressure. But the improvement was of short duration, and on December 2nd, the doses of iodide of potassium were increased to six grains, and a fortnight later to nine grains, three times a day. On each of these occasions the pain and swelling were, for a few days, diminished; but no real advantage was gained; and, after being under treatment for

three months, the condition of the affected part was almost exactly the same as when the patient was admitted. The pain in the knee had continued with very little change, but the swelling of the joint had subsided. The general health also remained unaffected; during the whole of the three months she had not a chill, or a great heat, or thirst, or loss of appetite.

In consultation it was decided that the periosteum at the seat of disease should be cut through. For it seemed nearly certain that the case was one of periostitis maintained by some confined source of irritation—pus or ulcerated bone or the like. It might be a low bony growth covered with inflamed periosteum, or with an inflamed bursa, or it might be a cancerous tumour; but this seemed too improbable for an objection against the proposed treatment.

On January 13, I made an incision, about six inches long, in the outer part of the thigh, over the principal and tenderest part of the swelling. All the textures cut through, down to the outer surface of the periosteum, appeared perfectly healthy; there was not in any of them the smallest sign of inflammatory change. The periosteum was, in the portion divided, from one-third to one-half of an inch thick, and in all its thickness dense, tough, white, and moderately vascular. Between the periosteum and the bone the incision laid open a flattened irregular cavity, from which a little blood-coloured fluid escaped, and was followed by the protrusion of some soft substance like coarse granulations. In this cavity, which was from an inch to an inch and a half in its diameter, was a thin, rough sequestrum, separated from the wall of the femur, about an inch and a quarter long and a quarter of an inch wide. The walls of the cavity, of which the outer was formed by the thickened periosteum and the inner by the hollowed-out surface of the femur, felt smooth and velvety, as if covered with granulations like those of ordinary cavities containing sequestra.* The sequestrum appeared to be derived, not from the outermost layers of the femur, but from layers just within them.

The central point of interest in this case is, I think, in the fact of necrosis, leading to separation of bone, being unattended with inflammation of any of the textures external to the periosteum, or with more than a scarcely discernible

* The condition was very similar to that of a cavity with 'subcutaneous granulations' in a case of ununited fracture.—'Lectures on Surgical Pathology,' 3rd edit. p. 155.

amount of suppuration around the sequestrum. How unlike this is to the ordinary course of necrosis I need not describe.

I can remember to have seen only one similar case.

A boy, 13 years old, was under my care in St. Bartholomew's, with a large ovoid swelling round the upper part of the left humerus, which had slowly and painfully increased for, I think, about a year. It was thought most likely to be a firm medullary cancerous growth; but the doubts were enough to justify an exploratory incision. This was made through perfectly healthy textures, till the periosteum was reached, which was greatly thickened, and covered some cavities containing thickened and half-dried pus and several small sequestra from the wall of the humerus.

The rarity of necrosis without contiguous suppuration is also proved by the observations of Mr. Stanley,* who in his large experience of diseases of bone found only one instance. The specimen to which he refers is in the Museum of St. Bartholomew's Hospital.† In the right femur and the left tibia of the same person, large portions of the inner layers of the walls of the shafts are completely separated after necrosis; but in the thickened outer layers of the walls surrounding the sequestra there are no openings for the discharge of pus. 'Under these circumstances,' as Mr. Stanley observes, 'it is not to be expected that abscess and fistulous passages would form in the soft parts adjacent to the bone.'

In reference to clinical study and practice I suggest, as the chief features in the case which I have related, these:—

Necrosis may exist without any signs of inflammation in the structures over the periosteum.

In cases of this disease there may be no other symptoms than those of a chronic or subacute periostitis; and they may be difficult to discriminate from cases of broad, low, bony tumours over which bursæ may be inflamed, or from cancerous tumours.

The iodide of potassium may be a test helping diagnosis, in that, by relieving pain, it makes periostitis probable, and by its very limited utility makes it likely that the periostitis is connected with some abiding irritation, such as pent-up pus or loose bone.

The probability that what appears to be periostitis may be a covert necrosis, may be added to the reasons for cutting

* 'Treatise on the Diseases of Bones,' p. 79.

† Series I.; Sub-series A.; Nos. 118, 119.

through the periosteum in cases that long resist treatment with rest, iodide of potassium, counter-irritation, and the other usual methods for the cure of periostitis.

The same probability may recommend open rather than subcutaneous incisions of periosteum.

In all the early part of this case the patient complained only of pain in her knee. The frequency of pain in the knee when the hip-joint is diseased is well known, and is, I think, rather over-estimated. It seems less generally known that similar transference of pain may be observed in cases of disease of the shaft of the femur. Within the last month I have seen a young lady, with cancerous tumour of the upper part of the femur, who in the beginning of her illness felt no pain except in her knee and felt it there very acutely. In her also, as in the patient whose case I have related, the pain in the knee was associated for a time with slight swelling, from fluid in or around the joint, just as it sometimes is in cases of acute hip-disease.

Since the operation the patient has been free from pain, and the wound appears healing soundly.

XL.—*A Case of Paraplegia, occurring suddenly and without previous warning.* By S. J. Goodfellow, M.D. *With a Report of the minute examination of the Spinal Cord.* By W. Cayley, M.D.

MARY M., æt. 45, a washerwoman, admitted into the Middlesex Hospital under my care, May 2, 1870.

On April 29, three days previous to her admission, she suddenly lost the power of motion in the lower extremities, and partially of sensation. She had been at work all day at her occupation, when, after sitting some short time at her tea, on attempting to rise in order to cross the room for some purpose, she fell heavily on the floor, her legs having suddenly become powerless to support her. She succeeded after great difficulty, and entirely by her upper extremities, in dragging herself into bed, inflicting in so doing numerous

extensive bruises on the shins, and other parts of the flaccid and powerless legs.

At the time of her fall she felt a 'shock' pass through the lumbar portion of the spine, accompanied by a severe pain of a 'stabbing' character in and below the seat of the shock. The legs were benumbed, and there was a sensation as of 'pins and needles' running into them. Her mind was unaffected, and in other respects she felt quite well. During the preceding part of the day she had felt no particular local pain or discomfort, but was 'not quite so well as usual,' and she had had some slight shivering.

Her previous history offered nothing remarkable. She had been married twice, and had had three children, who were dead. One died, aged three years, of scarlatina; one, aged three months, of convulsions; and one was stillborn. She was a hard-working woman, and exposed to changes of wet and cold, as persons in her employment usually are, and for the past five years had not only worked unusually hard to maintain herself in the absence of her husband, who had deserted her, but had lived poorly, and had had a good deal of anxiety of mind. She stated that she never had had syphilis, nor were any remains of that disease to be discovered, nor had she ever had any serious disease. Her health had generally been good, except that for the last twelve years she had suffered occasionally from attacks of rheumatism in the shoulders, which, however, were never so severe as to keep her from her work. On her admission the lower extremities were completely paralysed as to motion, and sensation was still much impaired. She complained of great pain in the lumbar region of the spine, and that her legs 'felt like a dead weight.' Reflex sensibility was entirely destroyed. The temperature of the legs was much increased. This was perceptible to the patient as well as to others. There was no feeling as of a cord round the body; she had full control over the sphincters. Bowels had acted during the day of her admission. Temperature of body 99°. Nothing abnormal was discovered in the heart or lungs so far as they could be examined.

She remained much in this state until the 6th (the eighth day of the attack), when she complained for the first time of numbness in the arms and slight loss of power of moving them, and the grasp was considerably weakened. The pain in the back continued as before and occupied the same situation.

On the 9th she awoke, after sleeping soundly and quietly for several hours, with slight convulsive movements in the arms. They, however, soon subsided; but the numbness and diminution of motor power had somewhat increased. The urine still continued to be passed voluntarily, but could only be retained for short periods. It was cloudy and let fall a copious sediment of lithates; it was acid and presented no excess of phosphatic reaction.

On the 10th the paralysis had still more extended, but there was no paralysis of the face, the speech was perfect and intelligence clear; but at six o'clock on the following morning she was seized with a fit of coughing and apparent choking, from difficulty in bringing up the mucus which had seemingly accumulated in the bronchial tubes. She could only move her hands a very little. From this time she rapidly sunk, the breathing became more and more rapid and chiefly superior costal, and she died about midday.

Autopsy, 22 hours post mortem.—Features were contracted, as indeed were all the muscles of the body. Several bruises on the shins.

Brain.—The vessels of the dura mater were somewhat thickened from commencing atheroma. The surface of the brain was congested. The brain was otherwise normal, with the exception of a slight capillary ecchymosis in the right hemisphere.

Spinal Cord.—On the spinal canal being opened an unusual quantity of arachnoid fluid escaped, which was sanguinolent. Its precise amount was not ascertained. The membrane covering the upper part of the cord and medulla was thickened. The cord corresponding to the third cervical and the third dorsal vertebræ was softened. In the former situation the softening process had extended throughout its entire thickness, and in a vertical direction a little more than half an inch. In the latter situation it only occupied the anterior and lateral columns of the cord, the posterior columns being but slightly affected. At those parts where the softening had occurred the substance of the cord was almost diffluent and of a dark red colour. The membranes below the dorsal lesion were more or less red and congested. The other parts of the cord appeared perfectly healthy, and of the usual consistence.

Thorax and Lungs.—Firm adhesion of both lungs to the walls of the thorax. Both lungs much congested. The lower lobe of the left lung was in the first stage of pneumonic con-

solidation, and there was thickening of the inter-cellular substance, which was most marked in the proximity of the larger bronchi. The lung-tissue was here soft and breaking down in patches. The lower part of the left upper lobe was here and there collapsed.

Heart.—The heart presented a slight superficial white patch on its anterior surface. The heart was small and, save some thickening of the aortic and mitral valves and commencing atheroma in the aorta, was quite healthy. There were no vegetations.

Abdomen.—The liver was healthy; the spleen also, but somewhat larger than usual. Both kidneys were congested and slightly granular on the surface. Their capsules were somewhat adherent.

Uterus.—In its walls was imbedded a large fibrous tumour of the size and form of a cricket-ball, in which were found numerous calcareous deposits.

The following were the weights of the several organs:—

Heart, 8¼ oz.	Liver, 51 oz.
Right lung, 24¼ oz.	Right kidney, 3½ oz.
Left lung, 21½ oz.	Left kidney, 4 oz.
Spleen, 4½ oz.	

Remarks.—From the suddenness of the attack, the freedom from any loss of power previously, and the completeness and duration of the paralysis, I concluded that the case was one of spinal apoplexy of a limited extent, involving the whole of the motor tract, but only partially the sensory. The course of the disease after admission into hospital tended to strengthen this conclusion, especially in the absence of any evidence of vegetations in the heart. The gradual but rapid extension of the paralysis upwards led me to think that meningitis and inflammation of the substance of the cord had followed the primary lesion. The autopsy completely upset this diagnosis, and disclosed the unexpected fact that the upper portion of the cord was even in a more advanced stage of disease than the lower one primarily attacked. The question naturally occurred, What was the precise state of the cord which led to the sudden attack of paralysis, without any previous diminution of motor power of which the woman was conscious? There were no vegetations on the valves of the heart to lead one to suppose that embolism had taken place in some considerable vessel, and that sudden syncope of a portion of the cord had been the cause of the attack. And yet that something of this kind

had occurred I entertained a strong suspicion. For if the softening had been due to an inflammatory process, the paralysis would certainly have been more gradual in its approach. It may be imagined that a sudden shock from some cause, passing through the cord, might produce paralysis for a time, but in this case the paralysis is seldom, if ever, persistent. There is generally a partial, if not complete, recovery, even if inflammatory action should afterwards occur and softening and consequent paralysis supervene. This has been frequently observed in the brain. A sudden shock, as from lightning, or a severe blow, may be attended with instant loss of consciousness and power of movement; but this is generally only transitory. The consciousness and the power of motion return more or less perfectly, and the subject of the shock may feel for a day or two as well as before the accident, but after that time be affected with the usual effects of an inflammatory process, more or less acute. But in this case there was no recovery of function, even partial. The subsequent examination by Dr. Cayley of the diseased structure, after hardening it by chromic acid, has shown pretty clearly that the case was one after all of syncopal paralysis from thrombosis. There can be little doubt that the arteries were obstructed by solid bodies, and that the vessels near the seat of obstruction were filled with a solid coagulum. But the interesting point is, where did they come from or how were they formed? That they were not from the heart there is strong reason to believe. Was there sudden coagulation of fibrine in the vessels themselves? The woman had lived but poorly; there was evidence of some disease of the kidneys. She had also suffered from rheumatism, a disease in which the fibrine is unusually prone to coagulate. It is probable that from these several conditions the blood was in that state in which, from some local irritation, the fibrine would spontaneously coagulate in the vessels.

Report on the Microscopical Appearances. By Dr. Cayley.

Portions taken from the softened parts of the cord in the cervical and dorsal regions were submitted to microscopical examination. The process adopted was that of hardening in chromic acid, staining with carmine, and rendering transparent with carbolic acid. The principal change noticed was the plugging of the small arteries over extensive tracts in both

regions with firm blood-clots; this condition was present in arteries of a diameter of about $\frac{1}{300}$ of an inch to those of capillary size. In places where the arteries were cut across transversely it was evident that the centre of some of these coagula was of a much darker colour than the circumference. The only other change noticed was a great apparent thickening of the walls of many of the small arteries; this was most marked in the dorsal region. Dr. Bastian kindly looked at the sections, and expressed his opinion that, though this thickening was very apparent, it was not greater than he had met with in cords otherwise healthy. The nervous elements showed no apparent alteration, and no compound granular bodies were visible. As, however, it was not practicable to take sections from the very softest parts of the cord, it is possible that the ordinary changes met with in white softening may have been present over limited spaces and eluded observation.

The condition, therefore, was one of extensive arterial thrombosis, leading to complete arrest of the circulation over large tracts of the cord; but the microscopical examination threw no light on the causes of this thrombosis.

XLI. — *Nitrite of Amyl in Angina Pectoris.* By T. Lauder Brunton, M.D. Communicated by J. Burdon Sanderson, M.D. *Read February* 11, 1870.

WILLIAM H., æt. 26; formerly a blacksmith, now a toll-keeper; admitted to Ward I., Royal Infirmary, Edinburgh, December 7, 1866.

Antecedent History.—Patient was strong and healthy till his tenth year, when he was confined to bed for six months by a severe attack of rheumatism. During the next twelve years he had four other less severe attacks, and after recovering from the last of these his feet began to swell during the day.

In April 1866, he had a seventh attack, which lasted for a month, and six weeks after it was over he noticed an unusual palpitation of his heart, for which he entered the infirmary, and remained there three weeks, but left unrelieved. The palpitation gradually increased till he felt it

along the line of the carotids as high up as the ears; and in November last he began to feel besides a dull heavy pain about the left nipple. At first this came on every three days, usually during the night, and lasted half an hour. During the day he felt little inconvenience from the palpitation, unless he exerted himself.

On admission the pain was no longer confined to the region of the left nipple, but was worst along the right border of the sternum, and extended up to the right arm. This pain was more severe if he walked about much, otherwise he felt well. Professor Maclagan had charge of the clinical wards at this time, and the patient was treated for six weeks with tincture of aconite, and then with tincture of digitalis; but under these remedies the pulse became intermittent, and the pain was not relieved by either, and rather aggravated by digitalis. They were therefore discontinued, the digitalis being stopped on January 31. During their employment wet cupping over the cardiac region to the extent of ℥iv. temporarily relieved the pain.

February 1st, Professor Maclagan's term of office having expired, Professor Bennett took charge of the clinical wards.

On February 5th, the patient began to complain of pain in the back, neck, head, thighs, and elbow-joints; he had no appetite, was perspiring profusely, and his pulse was 116, full and strong. Next day the pain was most severe in the shoulders, back, hip, and knee-joints.

On the 8th he was examined by Professor Bennett and the clinical class, and the following was found to be the condition of his circulatory system:—Apex beat 2¼ inches below and 2½ inches to the outside of the left nipple. On palpation, pulsation is felt over the whole left front and side of thorax, most strongly between the fourth and sixth ribs, and faintly over the supraclavicular region.

Cardiac dulness commences at the middle line of the sternum and extends laterally outwards for 5 inches.

A loud, double, blowing sound is heard over the whole of the cardiac region, but is loudest at the base. Over the right sterno-clavicular articulation a single blowing is heard. Pulse 104, strong and jerking. The respiratory system was normal, the skin covered with an acid sweat, the tongue furred, no appetite, urine high-coloured and slightly albuminous. The pain in the joints continued along with pain in the neck in the line of the carotids, but the pain in the cardiac region was absent.

On the 11th the pulse fell to 80, and the pain in the joints diminished, but the patient was still troubled by pain in the left ear, and along the line of the carotids, with violent pulsation in them at night.

On the 18th the rheumatic pains in the joints and shoulders had entirely disappeared, but the pain in the cardiac region came on during the night.

On the 19th four ounces of blood were taken from the arm, with immediate relief to the pain and violent pulsation, and the pain over the heart, which usually came on at 3 A.M., was much less on the ensuing night.

25.—Patient's appetite remains unimpaired by the pain, and he takes all his food, consisting of steak diet, beef-tea, potatoes, and bread. Pil. colocynth. c. hyoscy. every other night. Ordered tinct. lobeliæ, 20 drops three times a day.

27.—The pain continued to come on during the night. ℥iv. of blood were taken from the arm at 10 P.M. An hour after patient went to sleep, had a good night, and the pain did not come on.

March 3.—Pain felt at 11 P.M. in breast and ears. A poultice applied over the breast gave some relief.

6.—Pain severe at 3 A.M., lasting for about 1 hour. At 9 A.M. ℥iij. of blood were taken from the arm. At 10 A.M. pulse 76, not so forcible as yesterday.

7.—No pain during the night.

8.—Pain came on as usual during the night. Tinct. lobeliæ to be stopped.

9.—℥j. of brandy to be taken when the pain comes on.

10.—The pain came on in the night and was not relieved by the brandy.

12.—The pain came on as usual at 3 A.M. A few drops of nitrite of amyl were put on a towel and inhaled by the patient. The primary effect noticed was a suffusion of the face, and the patient felt a glow over his face and chest. The pain disappeared almost simultaneously with the occurrence of these phenomena, but returned in 3 minutes. He then inhaled 5 drops more; the pain again disappeared and did not return.

16.—The pain has recurred each night and been relieved by the inhalation of 10 drops of nitrite of amyl. Last night it came on about 10.30 P.M., the same in position and character as before. On the patient's taking 10 drops of nitrite of amyl in ℥ss. of brandy, the pain went away, but returned in 3 minutes; 5 drops were then inhaled from a towel,

and the pain disappeared. He went to sleep in an hour and slept till 3 A.M., when he was awaked by a return of the pain. He drank 10 drops in a little brandy, but, no effect following, he inhaled a few drops. The pain disappeared and did not return.

17.—Pain came on at 1 A.M.; 10 drops were given internally. The pain was relieved, but returned in a few minutes; 10 drops were then inhaled. The pain disappeared and did not return.

Dr. Bennett, thinking the relief of pain by the amyl might be due to anæsthesia, ordered chloroform to be tried during the attack.

18.—About 2 A.M. the pain came on as usual, and chloroform was inhaled by the patient. He was only partly put under it, and as soon as he again became completely conscious the pain was found to be present as before; 6 drops of nitrite of amyl were then given by inhalation. The pain disappeared and did not return.

March 25.—The pain came on at 1.58 A.M, but was not very bad. While it was present the pulse was 100, respirations 32. After amyl was given, but the pain not quite gone, the pulse was 130, fell with the disappearance of the pain to 100, and twelve minutes after was 80, and respirations 24.

April 6.—The pain had come on about 2.35 A.M., and the patient was relieved by a whiff of amyl, but the pain began to return at the end of the sternum, right ear, and right shoulder. The chest was auscultated, but no abnormal sounds could be detected to indicate any coincident spasm of the bronchial tubes.

April 10.—Patient continues to have the pain every night, and instead of inhaling the nitrite of amyl from a cloth, does so from the bottle. Two or three inhalations usually suffice to relieve the pain. Up to the 8th he used pure nitrite made by Dr. Gamgee, but this being finished, he then began to use some made by Macfarlan & Co.; but the smell of it was not so agreeable, and it sometimes occasioned headache, which the pure amyl never did.

April 14.—The pain has been coming on several times during the night, is most intense at a spot 2 in. inside of the right nipple, remains there after it has gone from the rest of the chest, and is only removed by repeated inhalation. Last night it came on three times and was relieved by amyl each time, but five or six inhalations were r...

quired. To-day at 11 A.M. ℥iv. of blood were taken from the patient's arm, and he was ordered potass. iod. gr. viij. three times a day.

17.—Pain came on during the night and continued uninterruptedly for one hour and a half. By Dr. Bennett's order no amyl was taken, in order to determine whether the relief of the pain was due to it or to some change in the symptoms independent of it. Three dry cups were applied over the cardiac region. They did not relieve the pain.

18.—No pain during the night. No amyl taken.

19.—Very little pain, lasting half an hour. Took no amyl.

May 9.—Has had the spasmodic pain every night. Last night it came on five times, at intervals of about an hour, and was in each case relieved by inhalation.

15.—Pain has been rather less during the past two nights. Attention was called to-day to purpuric spots upon both legs, which the patient had noticed some days previously. Gums neither swollen nor tender. His diet for some time past has been beef-steak and potatoes, with porridge and milk for breakfast. The use of iodide of potassium to be suspended.

17.—Pain came on severely in the chest a little after midnight. It was worst 2 inches inside of the right nipple.

Tracing 1.—0h. 22′ A.M. Pulse 104 small, resp. 36. There is a thrill to be heard and felt with the second sound at the apex.

22′ 40″ 13 drops inhaled from a cloth.

Tracing 2.—0h. 24′ 0″ The lever of the sphygmograph has risen very much. The pain has gone, except at a point 2 inches inside of right nipple.

25′ 30″ 5 drops more given; pulse 112.

0h. 28′ 0″ Pain almost gone; patient now inhaled from the bottle; pulse 100.

Tracing 3.—0h. 34′ 0″ Pain has been gone for 4 minutes, but at 37′ it began to return inside the right nipple, and a little more was inhaled.

0h. 40′ 0″ Pain quite gone; pulse 92; resp. 28.

Tracing 4.—0h. 47′ 0″ Pain did not return.

In these tracings, like the others, the patient's position

was unchanged, and neither the band nor pressure screw of sphygmograph was touched.

18.—Pain came on three times last night and was very severe. He has had it during the day three times. The purpuric spots on the legs are much paler. To recommence iodide of potassium.

21.—The purpuric spots have reappeared on both legs. To stop the pot. iod. He had pain last night, but none during the day.

24.—Bled to ℥iv. on account of general uneasiness and powerful pulsations of the heart. The bleeding was immediately followed by a sense of relief.

28.—The pain has only been absent one night since the bleeding, but it has been much less severe than before it. The sphygmograph was fixed to his arm to-night in order to take a normal tracing for comparison with one to be taken during the attack. This had scarcely been done when the pain unexpectedly came on. The tracing, though unfortunately very imperfect, shows the diminished volume and increased tension of the pulse. In 2 the pain was severe, and 3 was taken after inhalation of amyl.

June 1.—Condition remains the same, spasmodic pain in the cardiac region occurring every night, but not severe, and easily relieved by a few inhalations of nitrite of amyl. Patient wished to resume his former occupation of toll-keeper, and was to-day discharged at his own request. Recommended to have occasional small bleedings.

Remarks.—In this case of Dr. Bennett's, which by his kind permission I now publish, we have a history of numerous attacks of rheumatic fever, followed by cardiac lesion, which was accompanied by palpitation of the heart, throbbing in the carotids extending as high as the ears, and a spasmodic pain in the chest. This pain was sometimes most severe near the left nipple, and sometimes at the right border of the sternum, but extended over the whole cardiac region, and shot up to the right ear and down the right arm. It used to come on suddenly during the night, generally between midnight and 3 A.M., was accompanied by little or no feeling of dyspnœa, and was somewhat relieved by the patient's sitting up. It generally came on every third night at first, but latterly every night, and was worse when the patient had used much exertion during the day. It was not relieved by tincture of aconite, tincture of Lobelia inflata, brandy, or dry cupping over

the cardiac region. It was made worse rather than better by tincture of digitalis. It was temporarily relieved by chloroform, but whenever the stupefying effect passed off the pain was as bad as before. It was somewhat relieved by warm poultices to the chest, and was generally absent for one night after a small bleeding, either from the arm or by cupping the chest. Under the use of iodide of potassium the attacks became less frequent, but purpuric spots appeared on the limbs, and each attack was at once relieved by the inhalation of nitrite of amyl. During an attack of rheumatic fever it disappeared completely, again returning with the departure of the rheumatic pains.

Angina pectoris is defined by Dr. Walsh as a paroxysmal neurosis, in which the heart is essentially concerned, and he divides it into pseudo and true angina, which differ mainly in the intensity of the symptoms. Friedreich and others divide it into functional and organic, according as it is accompanied by cardiac lesion or not. From the absence of a sense of impending death, the present case might be reckoned as one of pseudo angina, but in the intensity of the pain and the manner of its radiation it more closely resembles true angina. As cardiac lesion was present, it belongs to the class organic angina.

Various opinions have been advanced as to the pathology of this disease, some saying it is a mere brachio-thoracic neuralgia, but most holding that it is a neuralgic affection of the cardiac plexus. Some are of opinion that it is associated with cramp of the heart, others with weakness of that organ.

Eichwald* thinks that there is not only weakness of the heart, but a mechanical impediment to its action, produced by irritation of its regulating nerves, and that the pain is caused by unavailing efforts to overcome this obstacle. Nothnagel† states that during angina there is pallor and coldness of the extremities, small pulse, and other symptoms of a cramp-like contraction of the systemic arteries, and that the spasm is relieved by remedies which cause their relaxation, such as warm baths and friction.

It is quite possible that the pathology of all cases classed under angina pectoris is not the same, and that the differences of opinion are not due merely to the want of exact

* Würzburg. med. Zeitschr. iv. 249; Cblt. f. med. Wiss. i. 877.
† Deut. Arch. f. klin. Med. iii. 309; Cblt. med. Wiss. v. 715.

methods of observation. What the nature of the attack was in the present case may be learned to some extent from an examination of the sphygmographic tracings, which were begun by direction of Dr. Maclagan, and continued during the time the case was in the wards under the care of Dr. Bennett. In taking these tracings, the instrument, which was one of Marey's, without any means of estimating the pressure employed, was applied to the arm above the end of the radius, as it was found to cause pain when applied over the bone for any length of time. The amplitude of the curve thus obtained is greater, and it did not occur to me till after studying the physiology of the circulation under Professor Ludwig, that in such cases as the present, where sudden changes occur in the vessels, I was increasing the fallacy which the variation in the height of the lever from turgescence of the tissues produces, and which may be confounded with a rise from increased tension in the vessels. Except where marked otherwise, the tracings were all taken with the patient in a recumbent position, and neither the cord by which the instrument was attached to the arm, nor the screw regulating the pressure, was touched during the observation.

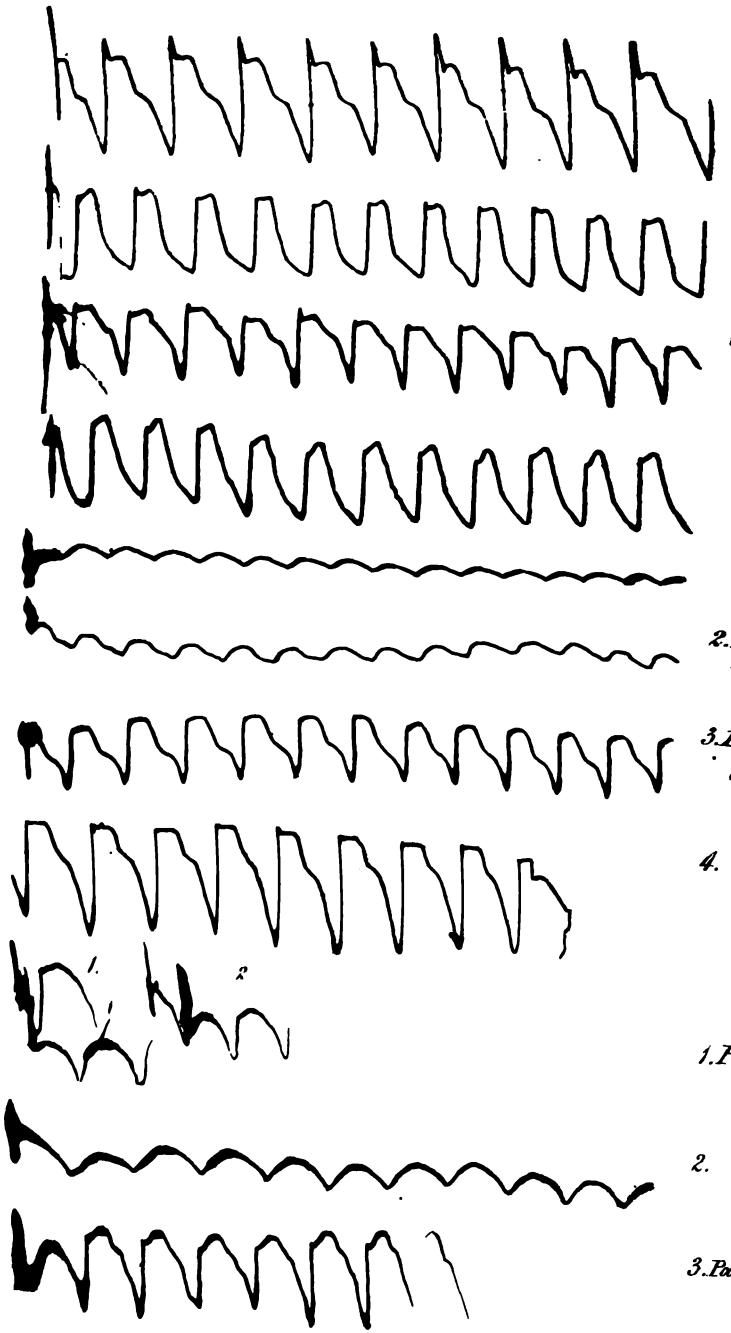
The case excited considerable interest, and was carefully observed and commented on by Professor Bennett to the clinical class, and the cardiac lesion was diagnosed by him from the physical signs to be aortic obstruction and regurgitation, with dilatation of the aorta, but no sacculated aneurism.

The tracings confirm this diagnosis, showing in a typical manner the abrupt ascent, terminating in a hook, of each wave, characteristic of the unfilled arteries, which aortic regurgitation produces, and the long and rounded apex of aortic obstruction. There is, however, a marked difference between the tracings from the two radials, the ascent of the wave being more abrupt, the top flatter, and the descent distinctly dichrotic in the right, while in the left the ascent is less abrupt, as shown by the smaller hook at the top; the maximum height is not attained till near the end of the systole, and there is generally little or no dichrotism in the descent. This might be due to aneurism; but there were no physical signs to show its presence, and in the absence of a post-mortem examination, or experiment with a schema, hypotheses as to the cause of difference are of little value.

The tracings taken during an attack were chiefly from the right radial. The only one I got while the pain was actually

TRACINGS OF THE PULSE

IN ANCINA PECTORIS



coming on is unfortunately an imperfect one (No. 1, May 28). From this tracing, and from those taken when the pain was becoming worse (Nos. 1 and 2 of May 17), it will be seen that as the pain increased the curve became lower, both the ascent and descent more gradual, and the dichrotism disappeared. This form of curve clearly indicates that the arterial tension is much increased, and this increase can, I think, be due only to contraction of the small systemic vessels, so sudden and so great as well to deserve the name of spasmodic. As I have stated in a former paper,* this increased tension led me to suggest nitrite of amyl to relieve the spasm.† The rapidity with which this increase in tension takes place is shown by the great change which the form of the pulse has undergone in tracing 1, May 28, during the short time occupied in re-inking the pen. It would seem from tracings 3 and 4 of the plate that the tension in the right radial was raised more than in the left, and farther experiments with simultaneous tracings are necessary to decide whether the spasm extends to all systemic vessels or to all alike.

At the same time that the tension increases the pulse becomes somewhat quicker, which shows that there is some disturbance of the regulating apparatus of the heart, as normally the increased tension acting on the roots of the vagus should slow the pulse. It has been suggested to me (by Professor Ludwig) that the pain in the heart may be due to irritation of its sensory nerves by the great pressure of the blood, and that in the right arm and neck may be due to the same cause acting on the arteries, those of the right side being possibly contracted more than the left. Whenever the tension was lowered by nitrite of amyl the pain disappeared from the greater part of the cardiac region, the neck, and the arm, but sometimes remained persistent at a point about two inches to the inside of the right nipple. This I think indicates that the tension in the right ventricle was not yet relieved, and the small volume of the pulse (see tracing 3, May 17) seems to show that the amount of blood passing through the small pulmonary vessels at each systole was small, probably from contraction of their lumen. So long as this condition remained the pain was almost certain to return. It is possible that the right ventricle

* 'Lancet,' July 27, 1867.

† Dr. Bennett, on being informed of the successful result of the first experiment, ordered the inhalation to be continued.

might not be able to empty itself completely at each systole, was therefore quickly refilled, and consequently contracted frequently, forcing the left ventricle to contract with it, and producing the rapid pulse with small volume seen in tracing 3 of May 17. The influence of the small vessels of the lungs over the circulation, though in all probability of extreme importance, is a subject of which we know as yet almost nothing.

The question whether the contractile power of either ventricle is lessened during the attack is one which cannot be decided with certainty from the present tracings. Digitalis, which has been recommended on the supposition that the heart is weak during the attack, proved productive in this case of more harm than good, contracting as it does the small vessels.

We may, I think, conclude that the attack in the present case consisted in a spasmodic contraction of some, if not all, of the small systemic, and probably of the pulmonary vessels, causing great increase in the blood-pressure in both sides of the heart; that this was probably due to a derangement of the vaso-motor system, and accompanied by a derangement of the cardiac regulating apparatus, producing quickened instead of slowed pulsation; that the pain was not originally in the nerves composing the cardiac plexus, but produced by the pressure of the blood on those of the heart and arteries; and, from the alternation of the attacks with rheumatic pains in other parts of the body, that they were of rheumatic origin.

XLII.—*Report of Committee appointed to investigate the Value of Quinine as a Means of diminishing bodily Temperature and Pulse in Pyrexia. Read May* 27, 1870.

THE Committee appointed to investigate the value of quinine as a means of diminishing bodily temperature and pulse in pyrexia, beg to present this Report of their labours to the Clinical Society.

In order to secure that the experiments should be conducted on a uniform plan, the following arrangements were made:—Except in a few instances in which the more soluble muriate was used subcutaneously, the sulphate of quinine has always been employed, and in all the experiments this salt has been obtained from the same chemists, Messrs. Corbyn & Co., and from the same stock, Messrs. Howard's. It has been given, dissolved or suspended in water, in doses of 20, 15, 10, or 5 grains once or repeatedly in the progress of the case. The nature, severity, duration, and stage of the disease prior to the experiment has been noted; and the observations on temperature have been made with the same thermometer in each case, the instrument being placed for not less than six minutes, and in most instances for ten minutes, in the axilla not previously exposed. Observations have been made on the pulse, respiration, and temperature, immediately before the administration of the quinine, and repeatedly during the next twenty-four hours. All the observations have been entered in a tabular form prepared for the purpose. The state of the skin, whether dry, moist, or perspiring, has likewise been noted, as well as any particular ill effects resulting from the quinine, such as noises in the ears, headache, sickness, &c.

In an inquiry like the present there have naturally been a large number of observations of a preliminary kind, from which no conclusions could be drawn. It has often been found difficult or impossible to ascertain the natural range of temperature, and in many instances in which a long series of observations has been made with this view, the irregularity in the daily variation has been such as to preclude the possibility of judging whether the changes noted were dependent or not upon the drug. Consequently, in comparison with the number of observations actually made, the cases that have been tabulated, so as to supply clear and definite information, are but few.

The number of cases of each disease being necessarily limited, it has not been found desirable to calculate percentages, as these would be more likely to mislead than an abstract of the cases actually observed, which is given in the Appendix.

Observations as to the effects of quinine have been made by the Committee in 11 cases of enteric fever; in 11 cases of typhus (in 7 of which one dose was given, and in 4 the dose (gr. xx.) was repeated daily); in 13 cases of phthisis; in 8 cases of scarlet fever; 2 of measles; 2 of erysipelas; 3 of rheumatic fever; 1 of pneumonia; 1 of relapsing fever.

Results.—In nearly all the cases of *enteric fever*, the temperature was reduced after the administration of the quinine, the reduction being most marked when the dose was given during the remission of the fever.

The effect was first noticed within two hours of administration, and lasted about thirty hours. Although decided lowering of temperature was noted during the exacerbation, it was still more marked during the remission. The pulse and respirations were usually somewhat lowered, but less markedly than the temperature.

In more than one case there seemed reason to infer that the course of the disease was somewhat mitigated, and in one instance perhaps shortened, but in connection with this it is necessary to keep in view the great variations in the natural course of enteric fever. Headache and noises in the ears were complained of, but no serious ill effect followed the quinine, except in a case in which 240 grains were given in less than three days (of which a few details are given in the Appendix, Case I.). Even in this case the delirium and collapse connected with the sudden defervescence were only transitory.

In another case of typhoid fever, in which hæmorrhage from the bowel had occurred, and in which quinine was given inadvertently, a recurrence of hæmorrhage seemed to follow the dose. (See Case XI. in Appendix.)

In all but one of the eleven cases of *typhus* the temperature was decidedly reduced, the reduction generally appearing within an hour. In no single instance did any elevation of temperature follow the exhibition of quinine. The effect on the pulse and respiration varied. The pulse fell frequently, but the respiration was quickened in several cases.

There was no conclusive evidence that the quinine, whether given in single or in repeated doses, favourably influenced the duration or course of the disease.

In a case of *croupous pneumonia*, gr. x. of quinine given on the morning of the fourth day, during the remission, caused a marked reduction of temperature, amounting to 2° F. The effect lasted twenty-four hours. The pulse-rate and frequency of respiration were likewise slightly reduced. The duration of the disease was probably unaltered.

In *measles* decided reduction of temperature followed the use of the quinine, and in one case the reduction was accompanied by collapse; but the course of the disease was unaltered.

In *rheumatic fever*, if the temperature is high, considerable effect seems to follow the quinine, but much less when the temperature is low. The course of the disease seems also to be favourably influenced by quinine if the temperature is high.

In *erysipelas* a direct effect was noticed to follow the quinine.

In *scarlet-fever* the reduction of temperature following the quinine was fairly marked in nearly all the (8) cases, the reduction appearing in two or three hours and lasting about twenty-four. It was doubtful whether in some cases the cessation of the attack might not have been somewhat hastened by the drug.

In the *hectic of phthisis* the effect of the quinine was generally to lower the temperature, pulse, and respiration, to mitigate the severity of the paroxysm, and often to postpone the attack of the following day and lessen its severity. The effect of the quinine rarely lasted more than thirty-six hours; it was sometimes apparent in half an hour after the dose, but in other instances was not observed for three or four hours, and was most marked when given at the end of the attack.

The general conclusions at which your Committee have arrived are—

1. That large doses of quinine have a marked effect in reducing the temperature in pyrexia, and a less marked effect on the pulse and respiration.

2. The reduction of temperature has not been permanent, but has varied in duration from one to forty-eight hours.

3. The most marked effect has followed when the quinine was given towards the end of the exacerbation or during the remission.

4. The disagreeable effects of large doses of quinine have been noises in the ears; headache, nausea, and sickness have been rare; delirium quite exceptional; and, as regards

the collapse noticed in two instances, it is important to remember that this sometimes supervenes in the course of fever independently of quinine, though in one instance at least there is reason to think the collapse had some relation to the repeated large doses of the drug.

5. Although with the exception perhaps of certain cases of rheumatic fever in which the temperature is high, no decided evidence has been obtained to show that quinine has any influence in shortening the attack of a specific disease such as typhus or scarlet-fever, yet from the marked effect on the temperature and pulse, there is reason to believe that at the critical stage of acute disease, when pulse and temperature are high, a large dose of quinine might be employed with benefit.

6. In conclusion, your Committee are of opinion that while the present inquiry must be regarded as quite a preliminary one, results have been obtained sufficient to warrant a further investigation of the subject.

C. MURCHISON, M.D.
E. SYMES THOMPSON, M.D.
HERMANN WEBER, M.D.

APPENDIX.

ABSTRACT OF CASES.*

CASE I.—*Case of Typhoid Fever observed by* Dr. HERMANN WEBER *in which* 240 *grains of Quinine were given in less than three days.*

(Reported by Dr. HIRSCH.)

H. B., æt. 17, a tailor, sickened on June 19, 1868, with headache, lassitude, and rigor; he had afterwards diarrhœa. Was admitted into the German Hospital on June 29, complaining of headache, thirst, and weakness; had much diarrhœa, a furred tongue with red edges and point, a large spleen, but had no distinct exanthema; he was very drowsy. The treatment consisted of rest, beef-tea, and milk, 1½ pint of each; cold water as a beverage, and 10 grains of quinine every three hours.

* It has been found necessary to condense the account of cases, and to omit Tables and Diagrams referring to them, which are in the possession of the Committee.

On June 29, eleventh day of the disease, at 4 P.M., the quinine was commenced, the temperature being 106·1°; pulse 120; respiration 26; after the second dose at 8 P.M., 105·6°, 125, 36; and at 10 P.M., 105·0°. The quinine was given regularly night and day.

Restlessness and some delirium occurred during the night. On the morning of July 2 (fourteenth day) the delirium was more marked. The twenty-first dose was given at 4 A.M., and continued till 1 P.M., twenty-fourth dose.

At 3 P.M., i.e. after the twenty-fourth dose, when he had taken 240 grains, the patient was in a state of complete collapse, skin cold with perspiration, pulse at wrist could not be felt, heart's pulsation about 100, very feeble, constant muttering delirium; jumps out of bed if not kept down by force. The delirium ceased on July 3 (fifteenth day of disease), when the temperature was 98·8°. He improved rapidly but had, in consequence probably of a mistake in diet, a relapse of several days ten days later, after which the recovery remained uninterrupted.

Remarks.—In this case the reduction in temperature was not at first very marked, but became distinct after the sixth dose, and entire apyrexia was noted after the twenty-second dose. Besides the noise in the ears, the collapse, and delirium, which may perhaps have been due to the quinine, no other important symptom occurred. The diarrhœa continued, but was not increased; the headache abated. The course of the disease was probably shorter than natural.

CASE II.—*Typhoid Fever (double experiment).* Dr. WEBER.
(Reported by Dr. WIBEL.)

J. S., a shoemaker's wife, æt. 50, had diarrhœa and vomiting during the last days of August, with repeated attacks of heat and cold. The diarrhœa and vomiting ceased on August 14, but she remained weak and feverish, and was admitted into the German Hospital on August 17 with moderate pyrexia. The diarrhœa reappeared on the 20th, and some faint-rose spots were first discovered on the 21st. Temperature varied from 98·8° to 103° from 17th to 31st, with regular evening exacerbations, great weakness, deafness, tendency to vomiting, marked trembling, and constant fear of death. From September 2 the pyrexia increased, and there was much bronchial catarrh. Treatment consisted of beef-tea, milk, port wine, 4 to 8 ounces daily.

On September 6 (40th day of fever) 20 grains of quinine were given at 3 P.M., the temperature being 103°, pulse 123, respiration 48. A marked reduction of temperature, amounting to 1·5° F. occurred in the course of 2 hours, lasting 24 hours. The diarrhœa increased, and noises in ears as of a 'great storm' were complained of.

A second similar dose was given on September 9 (43rd day); part was vomited an hour and a half after administration, but the reduction of temperature was even more marked, amounting, 19 hours after administration, to above 2° F. Both doses were given during the exacerbation, and showed some effect within two hours, while naturally the temperature would have risen, but the greatest reduction occurred during the following period of remission. The temperature during the second remission, however—i.e. about 40 hours after the first dose—was higher than on any preceding morning at the same hour, but after the second was probably the same as if no quinine had been given. The pulse was slightly reduced after each dose. Respiration was slightly reduced after the first, but unchanged after second dose.

The case was a severe and protracted one. Convalescence occurred at end of September. In October she had slight return of fever and diarrhœa, and, while not yet free, erysipelas faciei supervened (then prevalent in the ward), and she died on November 6. The post-mortem examination showed no fresh intestinal ulcers, but extensive deep cicatrices, especially near the valve of the cæcum.

CASE III.—*Typhoid Fever.* Dr. WEBER.

(Reported by Dr. PORT.)

K. B., æt. 34, a sailor, said that he had an attack of yellow-fever in Jamaica in the beginning of December 1869; that he was well when he sailed on December 15; that he again sickened before Christmas, and had been laid up with this fever up to the time of his admission into the German Hospital on January 20, 1870, when he had diarrhœa, was delirious, had very high temperature (103·5° to 105·6° F.), excessive fœtor of breath, at first no distinct exanthema, but on the 22nd, distinct fresh rose spots.

Treatment.—Beef-tea, milk, 1½ pints of each; 6 ounces of port wine, rest.

Two 10-grain doses of the muriate of quinine, given at short intervals in the evening, caused a rapid diminution

of temperature — from 103·2° to 98·4° F. — with collapse and delirium. A third dose given early on the following morning did not cause any additional change in the symptoms. The state of collapse lasted fully 30 hours after the last dose of quinine, when the temperature began again to rise, never reaching, however, the previous elevation. The recovery was in every respect very good. The quinine had also the effect of checking for about 48 hours the fœtor oris; a similar effect was observed in another experiment.

CASE IV.—*Typhoid Fever.* Dr. WEBER.

K. S., æt. 22. Ill a fortnight; first seen on January 18, 1870, with well-developed rose rash, large spleen, red dryish tongue.

Twenty grains of quinine were given on about the 16th day of the fever at 2 P.M., when the temperature was 102·4° F. No change was perceptible until 4 hours after administration, when the reduction amounted to 0·4° F., but it gradually increased to 1·6° F. 24 hours after administration. The effect had ceased in about 30 hours, when there was a moderate rise of pyrexia, lasting 24 hours; and then a gradual transit into the natural decline of the disease. There appeared to be a slight increase of diarrhœa during the 30 hours following the administration of the quinine. The course of the disease was mild. Pyrexia disappeared entirely on the 28th day.

CASE V.—*Typhoid Fever.* Dr. WEBER.

M. W., a girl æt. 15. Taken ill on February 9, 1870. First seen on 20th with diarrhœa, large spleen, abundant rose spots, and moderate pyrexia.

Treatment.—Rest, beef-tea, milk, water.

The effect of 20 grains of quinine given at 2 P.M. on the 13th day of the disease, when the temperature was 102·0° F., pulse 125, respiration 36, was very slight, as well on pulse and respiration as on temperature. The moderate reduction of all these passed off into the natural gradual decline of the disease, by which circumstance the appreciation of the effect of the quinine was rendered difficult. The course of the disease was simple and favourable. Pyrexia had entirely ceased on the 22nd day from the commencement.

CASE VI.—*Typhoid Fever.* Dr. WEBER.

Abstract.—M. K., æt. 18. Taken ill December 27. First seen on January 5, 1869, with headache, rose spots, enlarged spleen, and pyrexia. The temperature at 9 A.M. was 103·0° F.; pulse 110; at 2 P.M. 103·2°, at 5 P.M. 103·0°, at 9 P.M. 103·4°.

On the following morning, the 11th day of the disease, a 20-grain dose of quinine was given, the temperature being 103·2° F.; pulse 115; respiration 36. At 11 A.M., temperature 103·4° F.; at 1 P.M. 103·6° F.; at 3 P.M. 103·6° F.; at 5 P.M. 103·3° F.; pulse, 118. The motions became for the first time diarrhœtic. At 7 P.M., temperature 103.0° F.; at 9, temperature 102·8° F.; pulse, 112.

On the next day (12th day of disease) the temperature at 8, 10, and 11.55 A.M. was 102·4° F., and at 4, 6, and 9 P.M. varied from 103·4° to 103·8° F. The diarrhœa continued, and the temperature remained above the normal level till the 22nd day of the disease, after which convalescence became established. The case was of a mild type.

Remarks.—The dose of 20 grains of quinine, given on the morning of the 11th day of the disease, caused only a very slight reduction of temperature, scarcely amounting at any time to one degree, manifesting itself only about 8 hours after the administration, and lasting about 30 hours.

CASE VII.—*Typhoid Fever.* Dr. WEBER.

C. W., æt. 15. Taken ill October 13, 1868, with headache, lassitude, fever. First seen on 19th. High fever; large spleen; diarrhœa; red and dry tongue. Rose spots first seen on 21st (9th day of fever).

Twenty grains of quinine were given at 9 A.M. on this day (9th of disease), the temperature being 103·2° F.; pulse 119; respiration 38. A slight reduction followed the dose, which was repeated at 2 P.M. on the 23rd (the 11th day of the disease), the temperature then being 103·5° F.; pulse 118; respiration 40. The temperature was again lowered, but not more than 1° F.; the course of the disease, which was throughout of a mild type, did not appear materially modified.

CASE VIII.—*Typhoid Fever.* Dr. WEBER.

W., æt. 23, an otherwise healthy man, had suffered for [illegible] from headache, and afterwards diarrhœa and fever,

when he came under observation on January 21, 1870. There were many rose spots, a large spleen, a red dryish tongue.

Twenty grains of quinine administered on the morning of the 13th day in this mild case (the temperature being 102·6° F., pulse 116, respiration 20) caused only a very slight diminution of temperature, amounting during the evening to about 0·5° F., and on the following morning to about the same. The pulse and respiration were just perceptibly reduced. No disagreeable symptom except a feeling of sickness followed the dose. The temperature had risen to its former height 30 hours after the experiment. The course of the disease was to all appearance unchanged.

CASE IX.—*Typhoid Fever (double experiment).* Dr. WEBER.

M. F., æt. 25, began to feel unwell November 8; first seen on 13th, with headache, fever, lassitude; diarrhœa commenced on 14th; swelling of spleen, rose spots, on 15th; temperature ranged from 13th to 16th from 102·8° to 103·8° F.

On the 10th day of the fever 20 grains of quinine were given—

At 9 A.M.	temp. 103·2° F.;	pulse 108; respir. 36.
„ 1 P.M.	„ 103	
„ 3 and 5 P.M.	„ 102·2.	

The temperature did not rise to 103° F. for 48 hours. On the 12th day it varied from 103° F. to 103·4° F.

On the 13th day the same dose was repeated at 9 A.M. as before, the temperature being 103° F., pulse 108, respiration 34, and the temperature fell in a similar manner, but the reduction did not amount to more than 1° or 1·4° F. and lasted about 36 hours. Excepting noise in the ears and increased deafness, there was no unpleasant symptom. The disease was probably not shortened.

CASE X.—*Typhoid Fever.* Dr. WEBER.

C. M., a muscular healthy youth, æt. 19, sickened on June 30, 1869; was first seen on July 4 (5th day of disease), when the fever was already high. Diarrhœa supervened on the 6th day, rose spots on the 8th, the spleen being found large from the 6th day.

A 20-grain dose of quinine was twice given, with the effect of reducing the temperature, the reduction being most considerable (from 105·4° to 101·5° F.) in the earlier period (8th day) of the disease, when the quinine was given (at 6 P.M.)

towards the end of the exacerbation. It amounted to 3·9° 14 hours after, and 2·4° 24 hours after, and was still marked 28 hours after administration; but 34 hours after the influence had disappeared.

After the second dose, given on the 11th day at 9 A.M., i.e. during the remission, the reduction amounted to about 1° (from 104·4° to 103·6°) 10 hours after, and about 1·4° 24 hours after administration. The effect probably lasted 30 hours. The course of the disease may have been mitigated, but was apparently not shortened. The frequency of pulse and respiration was but slightly reduced.

The treatment consisted in rest, beef-tea, and milk, a pint to 1½ pints of each per diem, and cold water as a beverage.

The case was characterised by a high degree of pyrexia at an early period, 105·4° F. on the evening of the 8th day; but was otherwise normal in its course, with the exception of the deviations caused by the two doses of quinine. The quinine caused no disagreeable symptom except increased noise in the ears. The convalescence progressed rapidly, the pyrexia having entirely ceased after the 24th day of the disease.

CASE XI.—*Typhoid Fever.* Dr. WEBER.

(Reported by Dr. PORT.)

E. S., æt. 31, admitted into the German Hospital October 10, 1868. Ill 25 days. Spleen large; diarrhœa frequent; pulse varying between October 10 and 14 from 120 to 132; temperature from 103·8° to 104·7° F.; respiration generally 40; extensive bronchial catarrh; urine albuminous.

Treatment.—Tannic acid, 5 grains; opium, 1 grain; three times a day.

The case was severe and protracted, intestinal ulcers being, probably at the time of admission, extensive, deep, and in various stages, the lungs affected, and the tissue of the heart degenerate.

The 20-grain dose of quinine given under these circumstances, at 7 P.M., on October 14, when much diarrhœa existed and some intestinal hæmorrhage, was followed by great increase of diarrhœa and hæmorrhage, by a great sinking of temperature—from 104·2° to 95·2° F.—by complete collapse. It is, however, not quite certain that these phenomena were the effect of the quinine, for they do occasionally occur without it, and excessive diarrhœa and loss of blood are likewise often followed by great lowering of temperature; the

quinine *may*, however, have contributed to the occurrence. Death occurred on October 19.

At the post-mortem examination, in the ileum, up to the commencement of the colon, besides more or less completely cicatrised ulcers, there were many fresh ones, extensive, deep, and almost perforating near the cæcum; the mesenteric glands much enlarged; the spleen large and rather soft; kidneys congested; lungs much congested, the lower lobe of the left pneumonic; the heart soft, easily torn, fibres granular, without any trace of transverse striation.

CASE XII.—*Typhus Fever.* Dr. MURCHISON.

Helen C., æt. 24, nurse in London Fever Hospital, was seized with chilliness on October 30. On October 31 this increased, and was accompanied by headache and loss of appetite; and on November 3 a distinct typhus eruption was noted. On November 5 this eruption was well out; expression very heavy, but mind clear; pains gone. Complained of great prostration.

Nov. 5, 7th day .	4.15 P.M.	.	T. 104·6° F.	P. 120	R. 28
„ „ .	4.25 „	(20 grs. Quin.)			
„ „ .	5.25 „	.	„ 103·8	„ 132	„ 48
„ „ .	7.25 „	.	„ 102·2	„ 128	„ 40
„ „ .	10.25 „	.	„ 101·4	„ 124	„ 28
„ 6, 8th day .	2.25 A.M.	.	„ 101·4	„ 108	„ 28
„ 7, 9th day .	4 15 P.M.	.	„ 105·	„ 152	„ 32
„ 9, 11th day	4.30 „	.	„ 102·6	„ 116	„ 34

One dose of 20 grains was given on the 7th day of typhus. Its effect seemed to be (see table) to quicken the pulse and respiration, but to lower the temperature for three or four hours. After this, the pulse, respiration, and temperature all fell; but 48 hours after the experiment, they were all higher than before. The case was from the first a mild one, and the patient was convalescent on the 13th day.

CASE XIII.—*Typhus Fever.* Dr. MURCHISON.

Elizabeth H., æt. 13, admitted into the London Fever Hospital on November 6, 1868; ill 5 days. On admission was very heavy, had much headache, slept badly; pulse 132; copious eruption of typhus. On November 7, at 4.30 P.M., still had much headache and general pains; was very fretful; expression heavy. At 4.50 P.M.—the temperature being 104·6°F., pulse 144, respiration 48, skin dry—20 grains of quinine were given. At 5.50 P.M., one hour after the dose, the

patient was very heavy and distressed, with irregular sighing respiration; mind much confused, but says she has no noises in the ears; crying out, delirium, and says she is silly in the head. The temperature had fallen to 103·6° F.; pulse 168; respiration 53; skin moist. At 7.50 P.M. temperature 101·4°; pulse 140; respiration 43; skin dry; very heavy and drowsy; mind still confused. At 10.50 (six hours after dose), temperature 103·4°; pulse 144; respiration 54; skin dry. Has humming in the ears and headache; has slept at intervals, and is very drowsy. At 4.7 A.M. the following morning, temperature 103·4°; pulse 152; respiration 49; skin dry. Has slept since last observation. No headache now; expression less heavy. At 11.13 A.M. temperature 103·6°; pulse 152; respiration 51; skin dry. Has slept all the interval. No headache or noises; is fretful and nervous, but mind clear. 11.52 P.M. temperature 103·4°; pulse 152; respiration 52; skin dry. Still heavy and oppressed; complains of headache and general pains. On the 9th, 11.7 A.M., temperature 104·2°; pulse 156; respiration 52; skin dry; 5 P.M. pulse 156. 10th: pulse 144, respiration 54.

Here the effect of the quinine was to quicken the pulse and respiration, but to lower the temperature, though only for three or four hours. The fact that on the day after the experiment the temperature was a degree less than before, might be accounted for by the natural course of the disease. The patient was convalescent on the 15th day.

CASE XIV.—*Typhus Fever.* Dr. MURCHISON.

William P., æt. 33, was admitted into the London Fever Hospital with typhus eruption well out. Had been ill seven days. Felt chilly and had headache at first; but on November 5 this was gone, and he complained only of weakness; expression not very heavy, and mind clear; tongue moist, and covered with a thick yellow fur. Has had diarrhœa for 4 or 5 days, which on November 5 still continued. At 7.50 P.M. on November 5, the ninth day of the fever—the temperature being 104·8° F., pulse 108, respiration 28, skin dry—20 grains of quinine were given. The temperature fell in 2 hours to 103·4°, but the pulse remained unaltered. The temperature rose in 12 hours to its previous elevation, the general condition did not seem materially improved, and the patient was not convalescent till the 15th day of the disease. Noises in the ears, as of running water, occurred three hours after the dose, with slight deafness and confusion of mind.

CASE XV.—*Typhus Fever.* Dr. MURCHISON.

John H., æt. 12, when admitted into the London Fever Hospital, on November 4, had been ill four days with fever. On admission, pulse 120; typhus eruption well out. On November 7 (8th day of fever) his expression was heavy; much frontal headache. Twenty grains of quinine were given at 4 P.M.

At 4	P.M.	temp. 104·6° F. ;	pulse 132 ;	respir. 48 ;	skin dry.
„ 5.15	P.M.	„ 103·6	„ 116 ;	„ 56 ;	skin moist.
„ 8.15	P.M.	„ 102·4	„ 108 ;	„ 61 ;	skin dry.
„ 11.45	P.M.	„ 101·6	„ 104 ;	„ 63 ;	skin dry.

The respiration became irregular and oppressed, and seemed accelerated by the quinine, although the temperature and pulse were reduced for from 12 to 24 hours. The subsequent course of the disease, however, did not seem modified. The boy, for his age, had a very severe attack, and was not convalescent till the 16th day.

CASE XVI.—*Typhus Fever.* Dr. WEBER.

(Reported by Dr. PORT.)

M. P., æt. 18, was seized with rigor and other signs of fever on March 22, 1869.

Admitted into German Hospital on March 29, with distinct typhus eruption. The temperature ranged, from March 29 to April 1, between 103·2° and 104·4° F. On April 2 (12th day of fever) at 11 A.M., a 20-grain dose of quinine was given, the temperature being 103·2°; at 3 P.M. it had risen to 103·6°, but at 5, 7, 9 and 11 P.M. was noted 103°, and at 9 A.M. on the following day (June 13) had fallen to 102·9° and at 11 to 102·4°, next morning to 101·6°, and two days after to the normal standard.

The patient had suffered much from dryness of throat from the 11th day of the disease.

After the quinine he complained much of general uneasiness and difficulty of hearing, with noises in the ears, for two days.

From the 16th day he remained free from pyrexia and made a good recovery.

General Remarks.—The 20-grain dose of quinine given on the 12th day of the disease caused only a slight depression of temperature, amounting scarcely to one degree Fahrenheit,

and to all appearance did not cut short the disease, the pyrexia ceasing only on the 16th day from the commencement (rigor). The quinine seemed to cause a general uneasiness, restlessness, and deafness, lasting for rather more than two days.

CASE XVII.—*Typhus Fever.* Dr. MURCHISON.

Elizabeth L., aged 48, admitted into London Fever Hospital. Ill 5 days. On admission, pulse 120, soft; headache and general pains; mind clear; tongue moist; bowels open; typhus eruption well out.

The following day (7th day of fever) at 4 P.M.—the temperature being 104·2° F., pulse 132, respiration 32, skin dry—20 grains of quinine were given. In an hour the temperature had fallen to 103°; pulse 118; respiration 28. Two hours later, temperature 102·6°; pulse 116; respiration 28.

The pulse was smaller and weaker, counted with difficulty; mind confused; deaf and drowsy.

Within 24 hours the temperature, pulse, and respiration rose, and although the temperature did not quite reach what it had been before, the difference might be accounted for by the natural course of the disease. Subsequently to this the disease ran a severe course, and there was congestion of the lungs. The patient was not convalescent until the 18th day.

CASE XVIII.—*Typhus Fever.* Dr. MURCHISON.

Henry R., aged 35, when admitted into London Fever Hospital, had been ill three days with shivers, pain in back and limbs. Had lost his appetite for some time previously. Typhus eruption noted on the day of admission, and was very copious on the following day. Expression heavy; mind clear; not deaf; tongue moist, with white fur.

A 20-grain dose of quinine was given on the 5th day of the attack at 8 P.M., temperature being 104·8° F.; pulse 124; respiration 28; skin dry. An hour later the patient was drowsy, heavy, and more stupid, and two hours later giddiness and slight deafness were complained of, with humming in the ears subsequently.

The temperature fell during the night to 103·2° F., and the pulse was slightly reduced (120), but the general symptoms were in no way improved, and the patient died early on the 13th day of his illness.

CASE XIX.—*Typhus Fever.* Dr. MURCHISON.

Henry P., aged 18, admitted into London Fever Hospital November 11. Was taken ill on morning of November 5 (quite well on night of 4th), with pains in the back and thighs and loss of appetite. On admission the eruption was well out; mind clear; no headache; tongue moist, with thin yellow fur; bowels open the day before. Twenty grains of quinine were given at 4.30 P.M. on November 11 (7th day of fever), the

Temp. being 104.2° F.; pulse 100; respir. 40; skin dry.
At 8 P.M. 104·2 „ 108; „ 36; „

the breathing nervous and irregular.

On the following day (8th of fever),

At 9.30 A.M. temp. 103° F.; pulse 96; respir. 25; skin dry.
„ 4.30 P.M. „ 104 „ 100; „ 34; „

A second 20-grain dose was given at 8 P.M.

Temp. 104° F.; pulse 88; respir. 32; skin dry.

Has noises in ears; no headache; sleeps. On next (9th) day sleeps much; no headache; mind clear.

9.30 A.M. temp. 103·2° F.; pulse 92; respir. 24; skin dry.
4.30 P.M. „ 104 „ 100; „ 34; „

A third similar dose given and

At 8 P.M. temp. 104·4° F.; pulse 96; respir. 36; skin dry.
„ 11.55 P.M. „ 102·8 „ 80; „ 28; „

Next (10th) day headache; sounds in ears; sleeps much; coarse crepitation at base of both lungs.

9.30 A.M. temp. 102·4° F.; pulse 88; respir. 18; skin dry.

Fourth dose given

At 4.30 P.M. temp. 103.4° F.; pulse 88; respir. 28; skin dry.
„ 8 P.M. „ 103·6 „ 80; „ 32; „
„ 11 P.M. „ 104 „ 84; „ 30; „

Next (11th) day,

9.30 A.M. temp. 101·8° F.; pulse 80; respir. 22; skin dry.

Not so heavy; noises in head continue, but no headache.

4.30 P.M. temp. 101·6° F.; pulse 80; respir. 28; skin dry.
8 P.M. „ 101·6 „ 80; „ 34; „
11 P.M. „ 101·4 „ 80; „ 34; „

Next (12th) day,

9.30 A.M. temp. 99·8° F.; pulse 68; respir. 26; skin dry.
4.30 P.M. „ 97 „ 72; „ 24; „

And on 13th day, at 9.30 A.M., pulse 64; skin cool.

Remarks.—In this case 20 grains of quinine were given daily for 5 days, commencing on the 7th day of the attack of typhus. The influence on the pulse, respiration, and temperature was little or none, the slight fall in the morning being compatible with the natural course of the disease.

The case was from the first mild, and the patient only 18. Convalescence commenced on the 12th day.

CASE XX.—*Case of Typhus in which 20 grains of quinine were given daily for 7 days.* Dr. MURCHISON.

Mary Anne S., aged 19, admitted into the London Fever Hospital on November 9; ill 6 days with fever. Had much headache and general pains before admission, but they had left her, and her mind is clear. Aspect prostrate rather than heavy. Has copious typhus mottling; tongue moist and clear. On November 9, the 7th day of fever, at half-past 5 in the afternoon—the temperature being 102·6° F., pulse 120, respiration 26, and skin dry—the first 20-grain dose was given. At 8.30 p.m. (3 hours after) is depressed, has been sick and vomited; has no headache, but noises in the ears. Temperature 102·4° F.; pulse 128; respiration 28; skin dry.

Next day, at 10 A.M., respiration sighing, no sleep at night, but frequently sick. Has noises in the ears, but no headache. Temperature 103° F.; pulse 120; respiration 26; skin dry. At 5.30 P.M. temperature 103, pulse 128, respiration 29, skin dry; second dose given, but vomited soon after taking the mixture. 8.30 P.M. no headache or noise in ears, respiration quiet; feels very well, except rather cold; temperature 103° F., pulse 124, respiration 26, skin dry.

November 11 (9th day),

10 A.M. temp. 103·4° F.; pulse 132; respir. 29; skin dry.
5.30 P.M. „ 104·4 „ 132; „ 30; „ ; 3rd dose.
8.30 P.M. „ 102·8 „ 128; „ 28; „

November 12 (10th day),

10 A.M. temp. 103·4° F.; pulse 128; respir. 30; skin dry.
5.20 P.M. „ 103 „ 116; „ 23; „ ; 4th dose.

Not sick after quinine; no headache or noise in ears.

At 8.30 P.M. temp. 101·4° F; pulse 116; respir. 26; skin dry.

November 13 (11th day).—Not so well; appears low and will scarcely answer; no sickness or headache; tongue dry.

10 A.M. temp. 101·6° F.; pulse 112; respir. 23; skin dry.
5.30 P.M. 5th dose.
8.30 P.M. temp. 101 „ 116; „ 28; „

November 14 (12th day),

10 A.M. temp. 101·2° F.; pulse 108; respir. 28; skin dry.
5.20 P.M. „ 102·8 „ 108; „ 30; „ 6th dose.
8.30 P.M. „ 100·4 „ 108; „ 28; „

November 15 (13th day).—Much depression; appears worse; does not take notice unless when roused. Congestion of lung; abundant mucous crepitation over both bases, with dull percussion; dull percussion also over right front, extending to the apex, with crepitation; left front fairly clear.

10 A.M. temp. 102·6° F.; pulse 128; respir. 42; skin dry.
5.20 P.M. „ 100·8 „ 112; „ 40; „ 7th dose given.
7 P.M. „ 100·4.
8.30 P.M. „ 100·2 „ 112; „ 42; „

14th day.—Morning cough, pink flush on cheeks, no sweating, mind clear.

10 A.M. temp. 100·6° F.; pulse 112; respir. 40; skin dry.
5.2 P.M. „ 98·8 „ 108; „ 40; „

General remarks on Results of Experiment.—In this case 20 grains were given daily at the same hour, in an attack of typhus for 7 days, commencing on the 7th day. The effect of each dose (except the one rejected by vomiting) was to produce a temporary depression of temperature, but the influence on the pulse was not marked. The disease did not appear shortened, and on the 13th day a severe attack of congestion of the lungs and retching came on, which retarded convalescence till the 24th day.

Case XXI.—*Typhus Fever.* Dr. Murchison.

Mary S., aged 15, admitted into London Fever Hospital, November 13; ill 4 days; copious typhus eruption.

Twenty grains of quinine were given daily for 5 days; the respiration was quickened; the pulse little affected, but the temperature was in most cases reduced. At 9.30 P.M., when the dose was given, the temperature was generally about 104° F., pulse about 108, respiration 40. At 11 P.M. the temperature was generally 103° F., pulse 104, respiration 50; and at 10.30 A.M. varied from 103·4° F. to 99° F. A

good deal of deafness, headache, and torpor occurred, how far due to the quinine cannot be determined. The patient was convalescent on the 11th day, but the attack was mild from the first, and the age 15.

CASE XXII.—*Typhus.* Dr. MURCHISON.

Thomas F., aged 42, admitted into London Fever Hospital November 13; ill 6 days; eruption well marked. Twenty grains of quinine were given daily for 5 days (from 7th to 11th of disease). The reduction of temperature on each occasion was marked, but no improvement took place in the cerebral symptoms; on the contrary, the patient became more heavy and stupid; with noises in ears (which last ceased on discontinuing the quinine); and although the temperature fell to its normal standard, on the 13th day the patient remained in a semi-comatose state till death on the 19th day.

Day	9.15 P.M.	9.45 A.M.			9 P.M.			11 P.M.			12 P.M.		
		T.	P.	R.	T.	P.	R.	T.	P.	R.	T.	P.	R.
7th	Grs. 20				104·6	100	28				104·2	96	26
8th	20	102·5	88	22	104·6	92	24	101·2	92	28	100·8	84	28
9th	20	103·0	100	32	104·4	96	28	103·0	100	32	102·0	96	30
10th	20	102·2	100	30	103·4	108	32	102·2	100	30	102·2	104	36
11th	20	102·8	108	32	103·0	104	36	102·8	108	32	101·6	100	30
12th		102·2	104	30	101·6	108	26	102·2	104	30	100·0	108	34

CASE XXIII.—*Phthisis.* Dr. BURDON SANDERSON.

Elizabeth C., aged 41, charwoman, admitted into the Hospital for Consumption, February 6, 1868.

Antecedents.—The patient is married and has 13 children. She has always lived in London. Her father died of disease of the heart, her mother and one sister of phthisis. With the exception of the usual acute specific diseases of childhood, her health was good until 1859, since which year she has been subject to cough, which has been mostly matutinal and occasionally accompanied with vomiting.

Her present illness began in November 1867, with aggravation of cough, dyspnœa, pain in the chest, and abundant

expectoration. She has since been confined to bed. Seven weeks before her admission, a new feature presented itself. She was seized one morning, about 10.30 A.M., with what she described as a 'trembling,' which lasted about an hour, and was followed by severe sweating. The next day the rigor returned at the same hour, with blueness of the fingers, chattering of the teeth, and sensation of cold. It was again followed by sweating. Similar attacks recurred about the same hour daily until her admission.

State on admission.—The patient complains of cough, expectoration, and weakness. On examination of the chest it is found that the whole of the left chest is dull, the dulness being most complete towards the base, i.e. in the left flank and below the lower angle of the scapula. The thoracic movement is much diminished on the left side, and the breath-sounds are everywhere tubular; at several points in the flank and towards the base posteriorly they are amphoric, and are accompanied with gurgling and whisper-pectoriloquy. On the right side the signs are limited to the apex. Signs of consolidation, with commencing softening, are observed in the supra-spinous fossa and in front.

February 9.—There were no rigors either on the 6th or 7th. Yesterday there was a slight one, during which the temperature rose to 104·8° F., falling towards evening to 99·8° F.; pulse 104; respiration 32. This morning the rigor was severe. It came on at 10.30 and lasted an hour, and was followed by sweating. Temperature during rigor 103·9° F., at 9.30 P.M. 99·9° F. The patient was ordered a draught containing 4 grains of carbonate and 5 grains of muriate of ammonia, every 4 hours, and to have 1 ounce of the Mist. sp. vini gall. three times a day.

10.—Slight rigor at about the same time. Temperature during paroxysm 102·6°; at 2 P.M. 101·8°; in the evening 99·6° F. The pulse and respiration numbers were respectively 100 and 64 during the attack, and 88 and 36 in the evening.

11.—Temperature 103° F., pulse 100, and respiration 36 during paroxysm; temperature 99·6° F., pulse 86, respiration 32 in the evening.

12.—Severe paroxysm, commencing at 10.30. During rigor temperature 103° F., pulse 94, respiration 32; after rigor (i.e. at 11.30), temperature 104·4° F., pulse 108, respiration 60. At 12.30 the temperature was still 104° F.; in the evening it had fallen as usual to 99·6° F.

13.—During rigor temperature 102° F., pulse 100, respiration 40; after the rigor the temperature rose to 104·4° F.

14.—At the commencement of the rigor (10.30) temperature 102·2° F., pulse 100, respiration 28; at 11.30 temperature 104·4° F., pulse 110, respiration 50. In the evening, temperature 99° F., pulse 88, respiration 34.

15.—At 8.30 (the patient feeling well), pulse 80, respiration 38. At 10.30 temperature 99·8° F., pulse 85, respiration 36. At 12, temperature 102·6° F., pulse 88, respiration 36. In the evening, temperature 100·2° F., pulse 88, respiration 36. Ordered to take a draught containing 4 grains of sulphate of quinia daily at 8 A.M., 10 A.M., and at 12 noon. The ammonia mixture to be discontinued.

16.—At 10.30 A.M. temperature 101·2° F., pulse 96, respiration 40. At 11.15 A.M. temperature 103·6° F., pulse 98, respiration 40. At noon, temperature 103·6° F. In the evening (9.30), temperature 100·2° F., pulse 98, respiration 36.

17.—Towards end of rigor (10.45 A.M.), temperature 104·8° F., pulse 120, respiration 60. At 11.30 temperature 105° F.; at 12, 105·2° F. Ordered to take the quinia draught (4 grains) every two hours.

18.—The patient slept well and felt better this morning. At 9.30 A.M. temperature 99° F., pulse 88, respiration 32. At 10.30 A.M. temperature 100·4°F. At 11.30 A.M. temperature 103° F. At 1 P.M. temperature 103·6° F. At 4.30 P.M. temperature 102·2° F. At 9 P.M. temperature 101·6° F., pulse 96, respiration 32. To-day there was no rigor, though the temperature rose at the usual time. About 8 P.M. patient began to experience buzzing in the ears and headache. She was ordered to leave off the quinine till next morning.

19.—The patient slept well and has no symptoms of cinchonism; appetite failing; tongue clean; bowels confined. By neglect of nurse only two quinine draughts were given during the day. No rigor. At 9.30 A.M. temperature 100·6° F.; pulse 88; respiration 32. At 11.15 A.M. temperature 104° F.; pulse 90; respiration 60. At 3.45 P.M. temperature 101° F.; pulse 88; respiration 32.

20.—Patient complains of heaviness, thirst, and anorexia. At 10 A.M. temperature 99·6° F. At 11.30 A.M. temperature 102·4° F.; pulse 100; respiration 36. No rigor. At 10 P.M. temperature 101·4° F.; pulse 100; respiration 44.

21.—Much thirst and anorexia; tongue red, with prominent papillæ. At 9.40 A.M., she felt as if a shivering were coming on. Immediately after examining the chest, a severe rigor came on, which was attended with vomiting; it lasted till 11.30, and was more severe than any previous one. At

11.45 A.M. temperature 105·6° F.; pulse 102·0; respiration 32. The quinine draughts have been given regularly every 2 hours since 10 A.M. yesterday, so that she must have taken 44 grains during the 24 hours preceding the paroxysm. At 9 P.M. temperature 102·0° F.; pulse 104; respiration 32. Ordered to discontinue the quinine and to take the Haustus ammoniæ effervescens three times a day. To continue stimulants as before.

22.—The patient feels better; anorexia, with sickness; tongue large and white; bowels relaxed; no rigor. At 10.30 A.M. temperature 101·4° F.; pulse 100; respiration 34. At 11.30 A.M. temperature 102° F. At 10 P.M. temperature 105·2° F.; pulse 120; respiration 36.

23.—General state as before. At 10.30 A.M. temperature 101·6; pulse 100; respiration 34. No rigor.

24.—No rigor. At 10.30 A.M. temperature 100·6° F.; pulse 88; respiration 32. At 9 P.M. temperature 103° F.; pulse 82; respiration 36.

25.—No rigor. At 11.30 A.M. temperature 103° F.

26.—No rigor. At 10.30 A.M. temperature 100·8° F.; pulse 86; respiration 36. At 11.30 A.M. temperature 102·8° F. At 9.30 P.M. temperature 99·2° F.; pulse 84; respiration 38. Copious subsidence of lithates in urine.

27.—No rigor. At 10.30 A.M. temperature 101·6° F.; pulse 86; respiration 36. At 9 P.M. temperature 99° F.; pulse 88; respiration 34.

28.—Patient still improving. At 10 A.M. temperature 100° F.; pulse 84; respiration 40. At 9 P.M. temperature 99·2° F.; pulse 80; respiration 40.

29.—At 10 A.M. temperature 100° F.; pulse 90; respiration 34.

March 1.—At 11 A.M. temperature 100·8; pulse 80; respiration 36.

2.—At 10 A.M. temperature 102° F. At 9.30 P.M. temperature 99·6° F.; pulse 80; respiration 32. To-day the chest was examined, and it was found that the signs had undergone no material change since admission.

3.—No rigor. At 10 A.M. temperature 100·8° F.; pulse 82; respiration 34. In the evening, temperature 99·8° F.; pulse 82; respiration 36.

4.—No rigor. At 10 A.M. temperature 102° F.; pulse 84; respiration 34. At 9 P.M. 101·2° F.; pulse 82; respiration 32.

6.—A severe rigor occurred at 8.45 A.M., and was followed

by a second, less severe, at 11 A.M. At 10.30 A.M. temperature 104° F.; pulse 110; respiration 40. After the second rigor temperature 105·4° F.; pulse 124; respiration 48. At 1 P.M. temperature 104·8° F.; pulse 120; respiration 46. At 9.30 P.M. temperature 98·2° F.; pulse 80; respiration 32.

7.—A very severe rigor at 9 A.M. At 9.30 A.M. temperature 101° F.; pulse 112; respiration 40. After the rigor (10 A.M.), temperature 101·8° F.; pulse 112; respiration 44. At 11 A.M., temperature 102·4° F.

8.—No rigor. At 10 A.M. temperature 102·4° F.; pulse 112; respiration 40.

9.—A rigor at 2 this morning. At 10.30 A.M. temperature 100° F.; pulse 86; respiration 32. In the evening, temperature 99·2° F.; pulse 80; respiration 34.

10.—No rigor. At 10 A.M. temperature 99·8° F.; pulse 100; respiration 38.

11.—No rigor. At 10.30 A.M. temperature 102·6° F.; pulse 100; respiration 38. In the evening, temperature 102 F.; pulse 88; respiration 42.

April 13.—Since the 11th the observations of temperature have not been taken regularly. The patient has been in the same general condition, rigors occurring at irregular times and intervals. Ordered to take 8 grains of quinine in divided doses during the latter half of each day.

June 1.—The quinine has been taken continuously since April 13. The rigors have recurred in the same irregular way as before, and not less frequently. At 10 A.M. temperature 105° F.; pulse 120.

15.—The physical signs are somewhat altered. The evidence of general consolidation of the whole left lung remains as before, but the signs of disintegration are more advanced. Fine crepitation is heard over the right base posteriorly, and the breathing has a cavernous character at the inferior angle of the scapula.

On August 10 the quinine was finally discontinued, in my absence. She remained in hospital till her death, which occurred on October 3. The case had been throughout regarded as one of caseous or catarrhal pneumonia, resulting in disintegration of the peribronchial masses of consolidation—in short, as 'caseous phthisis.' The following points are worthy of note clinically:—(1) The paroxysms resembled very exactly those of quotidian intermittent fever, and at first occurred with great regularity. (2) They were apparently, for a time, arrested by the administration of doses of

quinine sufficiently large to produce well-marked cinchonism. (3) This effect was not, however, permanent, for on February 21 a rigor of greater severity than any which had preceded it occurred, while the patient was under the full influence of the drug. The thermometrical observations made during the three weeks following the discontinuance of quinine on February 21 show that the paroxysms were less violent, i.e. were attended with less elevation of temperature, than they were during the time that large doses of quinine were being given. The general condition of the patient was also better than it had been before. (4) The duration of the case was remarkable. She came into hospital in a state of great exhaustion, and suffered from a form of pulmonary consumption, which usually makes very rapid progress. At the time I believed that the unexpected postponement of the fatal result was due to the continued administration of quinine, nor do I, on reconsidering the question, see any reason to think I was in error. I never met with an instance in which I was so entirely mistaken as to the probable duration of life.

The notes of which the above is an abstract were taken for me by my very able clinical assistant, Mr. H. C. Gill. I have, for want of space, omitted various facts of interest, particularly those relating to the condition of the urine during the period of observation.

Case XXIV.—*Phthisis.* Dr. Weber.

In this case of phthisis 20 grains of quinine were given on four occasions.

Summary.—F. C., æt. 22, belonging to a healthy family, was attacked with catarrhal pneumonia after excessive exertion on a hot day in July 1869. In December 1869 the upper portions of both lungs were affected; there was on both sides slight bronchophony, and rather high-pitched rhonchus over the apex, with decided dulness; there was increased vesicular respiration in the lower parts of both lungs. The treatment consisted, on December 28, of 10 grains of bicarbonate of soda in an ounce of infusion of quassia three times a day.

General Remarks on Result of Experiment.—The first dose of 20 grains given on the morning of December 21, when the temperature was 102·2° F., pulse 111, respiration 36,

caused probably a very slight reduction of temperature on the afternoon of the same day, and probably also on the following. The effect of the second dose was still less marked, as well as regards the temperature as pulse and respiration. The effect of the third and fourth doses, given on successive days a few days later, was scarcely distinct enough to be mentioned in a positive manner. The pyrexia had diminished during the experiment, and remained low after the omission of the quinine, so that the diminution could not be clearly traced to the quinine. The fœtor of the breath, the perspiration, and expectoration were distinctly checked by the quinine, but for two days only in each experiment.

CASE XXV.—*Phthisis.* Dr. MURCHISON.

James L., æt. 42, admitted into Middlesex Hospital, April 13, 1869, in the last stage of phthisis. Hectic fever and night sweats; copious muco-purulent expectoration; extensive deposit of tubercle in both lungs, with cavities at apex of right; large fatty liver. Died January 13. The temperature was taken at 9 A.M. and 2 P.M. and 9 P.M. for a week before and a week after the dose (quinine, 20 grains) was administered. The febrile paroxysm of the same afternoon was postponed and rendered much milder, the temperature being 101° F. (pulse 112, respirations 32) at 2 P.M., instead of 102° F. and 104° F. as on previous and subsequent days.

CASE XXVI.—*Phthisis.* Dr. MURCHISON.

Jane Baker, æt. 16, admitted into the Middlesex Hospital on October 27, 1868, in the advanced stage of phthisis. Hectic; profuse night-sweats; signs of a large cavity at apex of left lung. Discharged relieved on December 19. The temperature, pulse, respiration, and state of skin were noted daily at 11 A.M., 3 P.M., and 9 P.M. for nearly a month. A large dose (20 grains) of quinine was given on four different occasions, and was followed on each occasion by a temporary fall of the pulse and temperature (see accompanying diagram).

Date	Dose of Quinine	11 A.M.				3 P.M.				9 P.M.			
		T.	P.	R.	S.	T.	P.	R.	S.	T.	P.	R.	S.
November 14		104·1	120	22	m.					101·5	104	20	d.
„ 15	20 grains at 9 A.M.	103·8	116	28	d.	102·3	132	28	m.	99·2	84	22	d.
„ 16		102·9	120	24	m.	102·8	124	24	d.	101·2	104	22	pp.
„ 17		104·4	124	24	d.	101·8	128	20	m.				
„ 18	20 grains at 9 P.M.	103·9	128	20	m.	103·4	116	24	d.	102·9	112	22	d.
„ 19		99·1	100	24	m.	101·2	104	24	m.	100·9	92	20	d.
„ 20	20 grains at 9 P.M.	103·7	112	20	m.	103·4	124	28	m.	102·1	112	22	pp.
„ 21		101·5	120	20	m.	102·4	112	24	m.	102·1	100	20	d.
„ 22		104·4	124	22	m.	102·5	112	20	d.	103·6	120	32	d.
„ 23	20 grains at 10 P.M.	104·0	120	32	d.	102·1	100	20	m.	103·2	136	24	d.
„ 24		101·4	108	20	d.	103·3	128	24	m.	102·2	108	20	m.
„ 25		104·2	136	24	d.								

Case XXVII.—*Phthisis.* Dr. Murchison.

Joseph H., æt. 20, admitted into the Middlesex Hospital on April 13, 1869, in the last stage of phthisis. Hectic fever and night-sweats; a large vomica at right apex, and copious purulent expectoration. The quinine was given on only one occasion, viz. April 24. Death occurred on May 2. The temperature, pulse, respiration, and state of skin are given in the following table:—

Date	Dose	9 A.M.			2 P.M.			9 P.M.		
		T.	P.	R.	T.	P.	R.	T.	P.	R.
April 21	10 A.M.	101·4	112	40	101·6	126	38	101·0	104	40
„ 22		101·4	112	40	102·2	120	44	101·0	104	44
„ 23		100·0	108	44	101·6	120	42	102·4	120	40
„ 24	grs. xx.	99·4	112	44	102·2	120	44	101·4	104	44
„ 25		98·6	104	40	99·2	100	44	101·2	112	40
„ 26		100·2	112	44	101·8	112	46	101·6	108	40
„ 27		100·6	116	40	103·6	116	48	102·2	116	44
„ 28		99·2	116	40	103·4	120	48	102·8	116	44
„ 29		100·2	112	40	103·0	112	45	102·3	112	44
„ 30		99·4	116	44	102·0	120	48	103·0	116	46
May 1		100·2	116	46	101·2	120	48	102·6	120	48

The quinine given at 10 A.M. had no effect in preventing the febrile exacerbation of the same afternoon (the temperature at noon, two hours after the dose, was 99·6° F.), but seemed to make the remission of the following morning more decided, and to postpone the subsequent paroxysm.

CASE XXVIII.—*Phthisis.* Dr. E. SYMES THOMPSON.

Alexander A., æt. 30, baker, admitted into the Hospital for Consumption, Brompton, early in April 1870, suffering from coughs, originally due to inhalation of dust (Miller's bronchitis); ill 18 months. Much dyspnœa; emaciation; constant cough; frothy expectoration; no hæmoptysis. No previous illness or hereditary predisposition.

Physical Signs.—Dulness at the left apex, rhonchus and sibilus, and coarse crepitation all over both sides.

On May 19 perforation of lung occurred, with pneumothorax, necessitating paracentesis, since which time pyrexia has lessened.

In this case of phthisis, 3 doses of quinine were given at intervals. After the quinine, the evening temperature fell below the previously-observed (ante-quinine) range. On the two first occasions the morning temperature was raised, apparently owing to the postponement of the exacerbation. The dose was given during the hot stage, or at the commencement of the third stage.

CASE XXIX.—*Phthisis.* Dr. E. SYMES THOMPSON.

E. S., æt. 17, ironer, cough 18 months. Hæmoptysis 3 months ago. Much emaciation; hectic; and night sweats.

Physical Signs.—Left apex, dulness; cavernous respiration. The temperature, pulse, and respiration having been noted for several days, and being persistently high—never below 101·2° F.—a 20-grain dose of quinine was given at 4.30 P.M. Headache, noises in the ears, and great nausea followed the dose. The temperature remained high—102·4° F., pulse 120, respiration 36, and skin very dry—a quarter of an hour after the exhibition of the drug, but fell two hours later:—

At 6.45 P.M.	temp.	101·2° F.;	pulse	96;	respir.	36
„ 7.30 P.M.	„	100·6	„	96;	„	36
„ 9 P.M.	„	99·0	„	108;	„	36

The fall was marked in 2 hours, but still more decided in 3 and in 5 hours after the dose was taken.

CASE XXX.—*Phthisis.* Dr. E. SYMES THOMPSON.

E.G., æt. 20, rapidly advancing phthisis, with emaciation, and marked hectic; the cold stage lasting from 7 A.M. till

1 P.M., and the hot stage from 2 till 5 P.M. A 15-grain dose of quinine was given during the cold stage at 11.30 A.M. The patient was very ill after the dose, with headache, faintness, trembling, jumping and starting of muscles, and noises in the ears; but no change was observed in the exacerbation.

CASE XXXI.—*Phthisis.* Dr. E. SYMES THOMPSON.

F. M., æt. 20; ill 18 months. Cough commenced 6 months ago.

Physical signs of cavity in both lungs; cough; night-sweats; hectic.

A 10-grain dose of quinine was given at 3.55 P.M.; the temperature being 104·8° F. An hour later the temperature had fallen to 103·4° F., and 2 hours later (7 P.M.) to 99° F. The exacerbation of the following day was milder than usual, the temperature not being noted higher than 100·3° F. The daily variations in this case, without quinine, were such as make it doubtful how far the changes observed were due to the drug.

CASE XXXII.—*Phthisis.* Dr. E. SYMES THOMPSON.

H. F., æt. 21. Father and mother consumptive. Ill 1 year, with cough, hæmoptysis, severe night-sweats, diarrhœa, œdema of legs, cold and shivering in the morning, hot and burning in the afternoon; flush on cheeks, most marked on affected side (left).

Physical Signs.—Left apex, amphoric respiration; right, crepitation.

Fifteen grains of quinine were given at 5 P.M., the temperature being 104·4° F., pulse 144, respiration 48, skin dry.

Two hours later (7 P.M.), temperature 102·2° F., pulse 120.
„ (9 P.M.), „ 100·3° F., „ 133.

Nausea and loud rumbling noises in the ears occurred an hour after taking the quinine; sleep was disturbed by illusions, startings of the muscles, and headache.

In this case the fall of temperature was very marked, amounting to 2·2° F. in 2 hours, the pulse being reduced 24 beats.

CASE XXXIII.—*Phthisis.* Dr. E. SYMES THOMPSON.

(Reported by Dr. CURNOW.)

E. S., æt. 48, always delicate. Father and four brothers died of phthisis. Ill 15 months; slight hæmoptysis 8 months ago; much emaciation; nearly constant cough, with muco-purulent expectoration.

Physical Signs.—Left Chest.—Amphoric breathing, gurgling and 'bruit de pot fêlé' infraclavicular region; dulness and crepitation of varying coarseness from apex to base behind.

Right Chest.—Coarse crepitation, upper third, back and front tubular breathing, and bronchophony.

The morning (10 A.M.) temperature was observed to vary from 96·6° F. to 98·8° F., and the evening (8.30 P.M.) from 101° F. to 102·2° F.

Twenty grains of quinine were given at 6.30 P.M. The evening temperature, two hours later, was 1° F. lower than on the previous evening; and the following afternoon the exacerbation of fever was markedly reduced. Next morning, however—i.e. 40 hours after the dose—the morning temperature was higher than it had been before (99·2° F.); the dose given during the exacerbation slightly lessening the severity of the attack, and mitigating and markedly delaying that of the following day.

On repeating the dose a week after at 2 P.M., the temperature, which was observed every hour, varied little from the previously-registered range until 10 P.M., when it rapidly fell, and at 1 A.M. was only 95·2° F. instead of 100·2° F., as it would probably have been if no quinine had been administered. It then gradually rose, and at 9 A.M. was 98·4° F., and at 10 A.M. 99·4° F.—exactly the same temperature as on the previous day.

This case was of interest as an indication of the importance of making frequent observations. Had the temperature been noted only at 3 P.M., 8 P.M., and 10 A.M., no effect would have been observed; whereas the depression occurring between 10 P.M. and 10 A.M. was gradual and decided, amounting at one time to more than four degrees.

CASE XXXIV.—*Phthisis.* Dr. E. SYMES THOMPSON.

(Reported by Dr. CURNOW.)

J. S., æt. 35. Previous illness:—Ague 20 years ago; bronchitis 2 years ago—never well since; no hereditary pre-

disposition; loss of flesh, 14 lbs. in 6 months; weight 8 stone; profuse night-sweats; cough, with much frothy expectoration; dyspnœa on exertion; pulse 112.

Physical Signs.—Right Side.—Dulness in subclavicular region, with bronchial breathing and bronchophony; rather small crepitation, with sibilus to base.

Left Side.—Amphoric breathing and pectoroloquy at apex; coarse crepitation with some sibilus elsewhere.

The hourly temperature was noted on July 9, 1870, when no quinine was given, and on July 10, after a 20-grain dose of quinine given at 7 A.M. The temperature, which had risen to 104° F. at noon on the previous day, reached 101·5° F., and remained far more stationary than on the preceding day, only once (at 8 P.M.) reaching 103° F.; it then fell, and remained steady at about 101° F., instead of 104° F., as on the day when no quinine was exhibited.

CASE XXXV.—*Scarlet-Fever.* Dr. WEBER.

G. B., æt. 12; exposed to infection on October 19; seized with vomiting and sore-throat on 26; eruption manifest on 28. Fever ceased on November 1; and, with the exception of a single febrile exacerbation on November 10, the convalescence was uninterrupted.

On October 27 (2nd day of the fever)—

At 9 A.M.	temp. 103·6° F.;	pulse 128;	respir. 42
„ 2 P.M.	„ 104·2	„ 136;	„ 46
„ 4 P.M.	„ 104·5	„ 140;	„ 44
„ 7 P.M.	„ 104·2	„ 130;	„ 45
„ 9 P.M.	„ 104·0	„ 136	

On the morning of the 28th (3rd day) gr. xv. of quinine (which, for a child of 12, may be considered a full equivalent to gr. xx. in the adult) was given.

At 9 A.M.	temp. 103.8° F.;	pulse 136;	respir. 44
„ 11 A.M.	„ 103·8	„ 138;	„ 42
At 1 P.M.	temp. 103·4° F.;	pulse 136	
„ 3 P.M.	„ 103·0	„ 130;	respir. 38
„ 5 P.M.	„ 102·8		
„ 7 P.M.	„ 102·4		
„ 9 P.M.	„ 102·4	„ 138;	„ 38

The eruption was very general; the child complained of great noise in the ears four hours after the quinine, and continued to do so, when asked, for 36 hours. No other disagreeable symptom occurred, and she had no other medicine besides the single dose of quinine.

On October 29 (4th day)—

At 9 A.M. temp. 102·6° F.; pulse 130; respir. 36
„ 11 A.M. „ 102·8
„ 1 P.M. „ 103·0
„ 4 P.M. „ 103·0 „ 132; „ 36
„ 6 P.M. „ 103·5
„ 9 P.M. „ 103·2

30 (5th day)—

At 9 A.M. temp. 103·0° F.; pulse 126; respir. 35
„ noon „ 103·2
„ 3 P.M. „ 103·0
„ 5 P.M. „ 103·2 „ 120; „ 36
„ 10 P.M. „ 102·5

31 (6th day)—

At 9 A.M. temp. 100·2° F.; pulse 112; respir. 28
„ 5 P.M. „ 100·0
„ 8 P.M. „ 99·2 „ 105; „ 26

November 1 (7th day)—

At 9 A.M. temp. 98·0° F.
„ 4 P.M. „ 99·2 pulse 100; respir. 24

2 (8th day)—

At 9 A.M. temp. 98·0° F.
„ 4 P.M. „ 98·4 pulse 90

Remarks.—The single dose of 15 grains of quinine caused a decided reduction in the temperature, extending over about 28 hours (amounting to about 1° F. to 1·5° F.). It seemed to have also slightly diminished the frequency of respirations (about 6 a minute), but to have had scarcely any effect on the pulse rate.

Possibly, the whole course of the disease was mitigated, the pyrexia having never again reached the same intensity after as before the experiment on the 3rd day of the fever, but this must remain doubtful.

CASE XXXVI.—*Scarlet-Fever.* Dr. WEBER.

H. S., æt. 18, taken ill February 19, 1870. Eruption on 21st. First seen on 22nd, with the usual symptoms of a moderately severe regular case. Twenty grains of quinine, administered at 4 P.M. on the 4th day, caused a slight reduction of temperature after 2 hours; this reduction gradually increased, and amounted on the following morning (i.e. 17 hours after administration) to 1·8° F.; it continued to increase

until 48 hours after the experiment, when complete apyrexia existed.

It is doubtful how far the decrease of the temperature, pulse rate, and respiration was due to the remedy, as on the 5th day the natural defervescence occurs in many cases of scarlet-fever. This may, however, have been hastened by the medicine.

Case XXXVII.—*Scarlet-Fever.* Dr. Weber.

F. K., æt. 5, a strong boy, taken ill on April 14, 1869. Eruption on 15th; high degree of pyrexia; throat affection considerable; external glands much swollen on 16th.

Treatment.—Iced lemonade. The effect of 10 grains of quinine, given at 2 P.M. on the 3rd day of the disease, was well marked 4 hours after, and apparently amounting, 24 hours after administration, to 1·1° F., and being still perceptible 30 hours after dose; but on the second morning after the dose the temperature was higher than it had been before. The course of the disease was probably not mitigated. The diphtheritic complication which occurred on the 6th day was certainly not due to the quinine, another case in the same house being similarly affected without having taken quinine. The whole course of the case was severe and protracted, but ended in perfect recovery after 9 weeks.

Case XXXVIII.—*Scarlet-Fever.* Dr. Weber.

Karl M., æt. 14, a strong boy, was taken ill on February 10, 1869, with vomiting and fever. Eruption on 12th. Complained of throat on 14th, also of pain and swelling in joints.

Treatment.—Chlorate of potash, 10 grains every 4 hours.

The effect of the dose of quinine (20 grains) given at the end of the 4th day was uncertain. The temperature, pulse, and respiration were high when the dose was given—viz. temperature 104·1° F., pulse 140, respiration 36—and sank rapidly on the following day, this fall passing over into the apyrexia of convalescence; but in some cases even of high fever, there is a sudden defervescence on the 5th day, and it is possible that this process of defervescence was accelerated by the large dose of quinine.

The case was uncomplicated; convalescence uninterrupted.

CASE XXXIX.—*Scarlet-Fever.* Dr. WEBER.

A. W., æt. 11, an otherwise healthy girl, was taken ill on February 13, 1870. The eruption appeared on 14th. She was very restless on 15th and 16th, complaining of sore throat.

Treatment.—Chlorate of potash, 5 grains every 4 hours; iced water and iced milk. The 15-grain dose of quinine, given on the evening of the 4th day, was followed by rapid sinking of temperature, amounting to 5·3° F. in less than 24 hours, and also by great diminution of the frequency of pulse and respiration; as, however, this diminution and disappearance of fever passed over into complete convalescence without any further rise of temperature, it may be regarded as the natural defervescence which not very rarely occurs on the 5th day of scarlet-fever.

Slight noise in ears and deafness were complained of after the quinine. Convalescence was undisturbed.

The case was of a simple type.

CASE XL.—*Scarlet-Fever.* Dr. WEBER.

F. W., æt. 18, after exposure to contagion, was taken ill on March 2, 1870. Had very faint scarlet exanthema on 4th; scarcely visible on 5th. On 5th and 6th, joints and throat affected. Temperature never exceeded 103° F., and pulse only once reached 110.

The effect of 20 grains of quinine, given on the evening of the 7th day of this case of scarlet-fever, complicated with joint affection, was scarcely perceptible. The temperature, which had not been very high (102·2° F. to 102·9° F.) on the 7th, was on the 8th 0·2° F. or 0·4° F. lower than it would perhaps have been without the quinine. The pulse and respiration were likewise scarcely influenced. Deafness and noise in ears followed the dose. Course of case protracted by joint affection and afterwards albuminuria.

The recovery, however, was perfect.

CASE XLI.—*Scarlet-Fever.* Dr. WEBER.

Karl W., æt. 16, seized with vomiting on March 13, 1870. Exanthema on 15th. Sore-throat.

Treatment.—Chlorate of potash, 10 grains every 4 hours; iced fluids.

The 20 grains of quinine given on the afternoon of the 4th day were followed by a slight reduction of temperature, two and four hours after administration, but by a perfect defervescence on the day following. This was, no doubt, due principally to the natural course of the disease, which course may, as in other cases, have been accelerated by the quinine, and in this way the quinine may have contributed to the state of depression on the 6th day, connected with the rapid defervescence.

The patient complained of no discomfort from the dose, but during the sudden defervescence on the following day, felt very weak, and was constantly in perspiration. On 6th day he was better, and recovered strength rapidly.

Case XLII.—*Scarlet-Fever.* Dr. Weber.

F. K., æt. 10, a healthy boy, began to feel slightly unwell on December 15, 1868—a week after return from an infected school. Eruption on 17th.

Twelve grains of quinine, given on the commencement of the 4th day, caused only a very slight diminution, if any, in the temperature, pulse, and respiration; no diminution in the pain in the throat, but also no unpleasant symptoms. The disease was a mild one, and terminated with marked diminution of pyrexia on night of 5th day, and total cessation on 6th.

Case XLIII.—*Measles.* Dr. Weber.

F. B., æt. 10, a weakly boy, had a measle cough from February 15, 1870. Manifested the exanthema on 20th. The cough was troublesome.

Treatment.—Barley-water. Mistura acaciæ. Rest in bed. Fifteen grains of quinine were given on the morning of the 7th day of fever—equal to at least 20 grains in an adult. A slight diminution of temperature followed, i.e. from 102·4° F. at 9 A.M. to 101·8° F. at 4 P.M., lasting about 30 hours. The temperature then rose again, but only for a few hours; after which the natural defervescence became established (from 9th to 10th day). The child felt sick after the quinine, but did not vomit; there was much noise in the ears, lasting about 36 hours. It does not appear that the course of the disease was altered by the drug.

CASE XLIV.—*Measles.* Dr. WEBER.

A. G., æt. 9, began to cough on December 4, 1869; came under observation on December 9, the eruption having appeared on 8th. This was abundant; there was much bronchial irritation. Rhonchus and sibilus on both sides; no dulness on percussion. Temperature 103·6° F.; pulse 122; respiration 48. Ten grains of quinine were given at 4 P.M. on the 10th (7th day of fever), during the period of exacerbation. No reduction of temperature manifested itself during the exacerbation, but in the succeeding remission it amounted to 1·2° F., and still more during the following exacerbation (viz. 2·4° F.). It rose again on the 9th and 10th days, and on the morning of the 11th day, when a second dose of 10 grains was given, which caused a reduction on the same evening, amounting to 2·3° F., and on the morning of 12th to 3·2° F. This result was probably aided by the natural tendency of the disease, as also by the occurrence of collapse. There were signs of catarrhal pneumonia at the left base; there was much restlessness and some delirium 16 hours after the second dose. The delirium passed off in 24 hours. The pulse, which had become very feeble after the second dose of the quinine, became stronger at the end of 24 hours, and the temperature rose slightly above the normal, but only for two days. Recovery progressed favourably after the 14th day of the disease.

CASE XLV.—*Erysipelas Faciei.* Dr. WEBER.

K. K., æt. 25, sickened on January 17, 1870, with rigor, headache, vomiting, thirst. Commencement of erysipelatous eruption on forehead on 18th. On the 19th (3rd day of illness) at 6 P.M.—temperature being 103·8° F., pulse 120, respiration 28—20 grains of quinine were given; the patient felt sick; there was no further increase of temperature; the exacerbation appeared arrested, and on the following morning, 15 hours after admission, was 2° F. lower than on the morning before the dose. It then gradually rose again, but the effect of the dose was still perceptible 27 hours after administration. On the 5th day the temperature had again risen almost to its original height. The case was a slight one of regular type. The eruption spread over the whole face in spite of the decrease of pyrexia.

CASE XLVI.—*Erysipelas Faciei.* Dr. WEBER.

K. M., a healthy man, æt. 25, having been exposed to contagion 5 days previously, was seized with headache and shivering on April 22, 1869. Erysipelas showed itself on the right eyelid, right half of forehead and nose, and spread on 25th. There was much headache and slight delirium on the 3rd and 4th days of the disease.

The quinine (20 grains) was given on the 4th day during the exacerbation, i.e. at 5 P.M., the temperature being 104·8° F., pulse 132, respiration 40. The temperature continued to rise during the first 3 hours to 105° F., but there was a marked reduction on the following day, amounting 16 hours after administration to 2° F.; 19, 22, and 25 hours after to 2·2° F.; 28 hours after it was still 1·8° F. The temperature then rose again, but soon sank at the period of natural defervescence (6th to 7th day). Headache and delirium were most marked in the afternoon of the 4th day, just before and during the first hours after the dose, but they were clearly not caused nor increased by it, and subsided while the patient was under the influence of the quinine.

It is uncertain whether the course of the disease was in any way shortened by the treatment.

CASE XLVII.—*Rheumatic Fever.* Dr. WEBER.

H. W., æt. 20, had rheumatic fever 4 years ago, which left a mitral affection. In December 1869 had sore-throat, followed by rheumatic fever, which, on December 23, was well marked with high temperature, and affection of several joints. Treated with bicarbonate of soda (20 grains three times a day). Four 20-grain doses of quinine were given. The first dose, given on the morning of the 9th day of the disease (temperature 102·4°, pulse 124, respiration 20), had only a very slight effect in depressing the temperature; the effect of the 2nd, given on the 10th day at 8 A.M., was more marked as well on the temperature as on the pulse, respiration amounting to about 1° F. or 1·3° F., viz. :—

8 A.M.	temp.	102·0° F.;	pulse 122;	respir. 28
12 noon	,,	101·6		
8 P.M.	,,	100·8	,, 110;	,, 22

The effect of the 3rd dose was likewise marked, bringing down the temperature from above 101° F. to 99·5° F. after 12 hours; the 4th dose seemed to make no further impres-

sion. The remedy caused no disagreeable symptom except noise in the ears. The case went on favourably, and the temperature remained nearly normal on the cessation of the experiments.

Case XLVIII.—*Rheumatic Fever.* Dr. Weber.

(Reported by Dr. Port.)

P. L., a sugar-baker, æt. 25, had rheumatic fever some years ago; old mitral affection; was almost suddenly seized with pain and swelling, first in one then in the other knee, on March 26, 1870; other joints became affected afterwards; admitted into the German Hospital on March 31 (6th day), with a temperature of 103·1° F. The treatment consisted in rest, a solution of bicarbonate of soda (20 grains three times a day) till April 4, when in the afternoon a 10-grain dose of quinine was given and repeated in the evening; 80 grains were thus given in 4 days. After the first dose the temperature showed a marked reduction, viz. from 102·9 °F. to 100° F., 17 hours after the 1st, and 13 hours after the 2nd dose, being 2·7° F. lower than on the previous morning; the evening temperaure showed the first reduction of 1·1° F. on the 2nd day of the experiment (i.e. after the 3rd gr. x. dose); on the 3rd day of the experiment (i.e. after 5th dose) it was 2° F. lower than before the experiment, and on the 4th day, i.e. after the 7th dose, 3·2° F. lower.

The morning and evening temperature remained reduced after the omission of the quinine, which seemed in this instance to have mitigated and shortened the disease. There were no disagreeable symptoms, except noise in ears. The perspiration, which had been profuse, became much diminished on the 3rd and 4th day, and the pain and swelling of joints on the 3rd.

Case XLIX.—*Subacute Rheumatic Fever.* Dr. Weber.

(Reported by Dr. Wibel.)

H. K., æt. 31, was seized with pain and swelling of various joints early in November 1869; admitted into the German Hospital November 15, with affection of different joints, moderate pyrexia, much perspiration.

Treatment.—Bicarbonate of soda, 30 grains every 3 hours. Temperature varied from 99·2° to 102°, with morning remissions.

The soda was omitted, and on November 22 (about 21st day of fever) 10 grains of quinine were given at 6 P.M., the temperature being 102·6° F. Slight reduction of temperature followed.

On 23rd, 24th, and 25th days of the fever 10-grain doses were given at 9 in the morning, and seemed to cause no depression when the temperature varied between 100° and 100·5° F.; 26 grains a day given on 3 successive days effected only a very slight diminution; while 51 grains a day, continued during 10 days, caused a slightly larger reduction, scarcely amounting, however, to 0·6° F. at the end of the period. The disagreeable effects, too, were only slight. Temperature remained unchanged after the omission of the medicine, being still usually above 99° F.

CASE L.—*Croupous Pneumonia.* Dr. WEBER.

F. P., a strong man, æt. 26, was seized with rigor on July 31, 1869, in the evening. Had pain in the lower part of the left side on the day following. Cough supervened on August 3, when the signs of pneumonia were found in the lower part of the side and back. The left upper lobe was free, and also the whole of the right lung.

Treatment. — Rest, linseed poultices, beef-tea, milk, barley-water, and small doses of hydrocyanic-acid in acacia mixture. Twenty grains of quinine, administered on the 4th day during the period of remission, at 9 A.M., when the temperature was 103·6° F., pulse 125, respiration 32, caused a marked reduction of temperature, amounting during the following period of exacerbation to 1·4° F., and 2·6° F. during the following period of remission. Twenty-four hours after the dose the effect was still pronounced (1·6° F.); it then gradually disappeared, and the temperature reached its ante-quinine range in 30 hours.

Duration of disease probably unaltered.

Pulse and respiration slightly reduced.

The disease was confined to the left lower lobe, and convalescence was perfect.

CASE LI.—*Relapsing Fever.* Dr. MURCHISON.

John Terry, æt. 20, was admitted into the London Fever Hospital on March 21, 1870, with all the symptoms of relapsing fever, which began at 9 A.M. on the 19th with shiverings,

followed by pains in the back and hypochondria, and vomiting.

On March 21 (the 3rd day of the disease), at 11 P.M., a 20-grain dose of quinine was given, the

	Temp. being	104·2° F.;	pulse	108;	respir.	34
One hour after, 12 night,	temp.	103·7	„	114;	„	48
Two hours later, 2 A.M.	„	102·0	„	100;	„	30
On 22nd, 11 A.M.	„	101·4	„	84;	„	24
11 P.M.	„	98·2	„	72;	„	18
On 23rd (5th day) 11 A.M.	„	98·0	„	60;	„	16
11 P.M.	„	97·8	„	52;	„	18

and the temperature, carefully taken for the week following, never rose above 98·6° F., nor the pulse above 78. There seemed every reason to regard this as a case of relapsing fever. Twenty grains of quinine were given on the 3rd day, or 62 hours from the commencement of the attack. The respiration for a few hours was quickened, but within 24 hours every symptom of fever had subsided, and there was no relapse.

In connection with this solitary case, it is right to add that occasionally the primary attack of relapsing fever does not naturally extend beyond 4 days, and that in a certain proportion of cases there is no relapse, even when no quinine has been given. Dr. Murchison also has found large doses of quinine, given immediately before the relapse, of little or no use in preventing or postponing it.

XLIII.—*Wasting of Part of the Tongue, in connection with Necrosis of the Occipital Bone.* By JAMES PAGET. *Read October* 22, 1869.

H. G., 27 years old, a dairyman, was admitted into St. Bartholomew's Hospital, under my care, on June 10, 1869.

Six years before admission he fell heavily on the back of his head. He was not stunned, but the injury was followed by constant pain and stiffness about the back of the head and neck. Ten months after the fall, abscess formed and discharged at the back of the head. The stiffness and very

discharge had existed ever since. A fortnight before mission he noticed that his tongue, when protruded, was ected towards the right. His general health had never n severely disturbed.

He was a healthy-looking man, except for the stiffness of neck, which was nearly complete. In the scalp over the cipital bone, numerous sinuses led to dead and bare bone, d to cavities containing pus, some of which extended er the upper cervical vertebræ. The integuments were ick and tough, infiltrated, and, where not undermined with s, adherent to the subjacent textures.

The speech was thick and slow. The muscles of the right le of the tongue were exceedingly wasted. This half of e tongue looked less than half as large as the left; it was llapsed, wrinkled, soft, sunken, like a tongue with wasting lsy, and the muscles of its left side alone appeared to t. Its sensations were unimpaired.

I removed all the dead portions of bone that I could find. hey were derived from the posterior and lower part of the cipital bone, some including the whole thickness of the one, so that the dura mater below the lateral sinuses was posed, in a space of rather more than an inch in diameter. ne of the portions of dead bone included the posterior ird of the border of its foramen magnum; another con- ined the right posterior condyloid foramen.

The patient recovered from the operation without hind- ance, and in a month nearly all the sinuses were healed, nd no dead bone could be felt. A few days after the opera- ion the wasted part of the tongue began to grow larger; nd within a month it had nearly regained its former size nd muscular power.

Six months after the operation the patient was in good ealth. Nearly all the sinuses were healed. The tongue vas still inferior in both texture and size on its right side; ut the difference was comparatively slight; and when put ut the tip went but little over to the right side. The rota- ory movements of the head were nearly free; the bending movements much less so.

The case scarcely needs comment. It is very rare as an instance of necrosis involving the border of the foramen mag- num, and not attended by grave cerebral or spinal disturbance. But its chief interest is in the wasting of the muscles of half the tongue—a wasting so rapid that it may be ascribed to some morbid condition of the hypoglossal nerve or of fila-

ments enclosed in it, and as rapidly recovered from when the morbid condition was brought to an end by the removal of the dead bone.

XLIV.—*Observations on Paracentesis Thoracis.* By R. Douglas Powell, M.D. *Read January* 28, 1870.

MUCH has been said and written concerning the treatment of pleuritic effusions since the revival of the operation of paracentesis by Dr. Hamilton Roe in this country in 1844, and by Trousseau in Paris at about the same time;* but as yet the treatment of this affection cannot be considered as satisfactory, and opinions are still divided, even respecting the first principles of operative procedure—principles which would appear, however, to have their safest foundation in an accurate knowledge of the physical relations existing between the chest walls and thoracic organs in health and their modifications in disease. It is mainly with this view that the addition of a mercurial pressure gauge to the apparatus for paracentesis is advocated here, for it is obvious that in hydrothorax the condition of pressure within the pleura, whether positive or negative, is the resultant of all those respiratory forces acting in various directions, which have been thrown into disorder by the effusion.

The other points which it is the object of the present paper to bring forward are the steady and continued treatment of pleural effusions, with the early performance of paracentesis when necessary; the primary importance of preventing the entry of air during the operation; the advisability in certain cases of employing the syphon principle in removing the fluid from the pleural cavity, or for injecting other fluids into it; and a description is given of an instrument more effectually and safely carrying out these principles, and serving to test the fluid pressure within the pleura at any stage of the operation, or to register the degree of syphon power used, supposing this latter agency to be desirable in any particular case. Two cases are related which serve to illustrate the use of the instrument.

* Dr. Thomas Davies powerfully advocated the operation in 1834 ('Medical Gazette'), but the above-named authors may be said practically to have revived it.

The instrument * above mentioned consists of a trochar, B, fig. 1, fitting into a canula, A, which is furnished with a single lateral branch, D, to which the tubing is accurately fitted by means of a movable piece, E. The cap, C, through which the trochar works, is provided with some wash-leather padding, which, when screwed down tightly, comes into intimate contact with the trochar, rendering this part of the apparatus perfectly air-tight. The exit tube, F F, fig. 2, which is attached to the movable piece, E, has inserted in its course a metal T-tube, G, to the third branch of which another piece of tubing is attached, which is connected with a mercurial pressure-gauge, H.

FIG. 2.

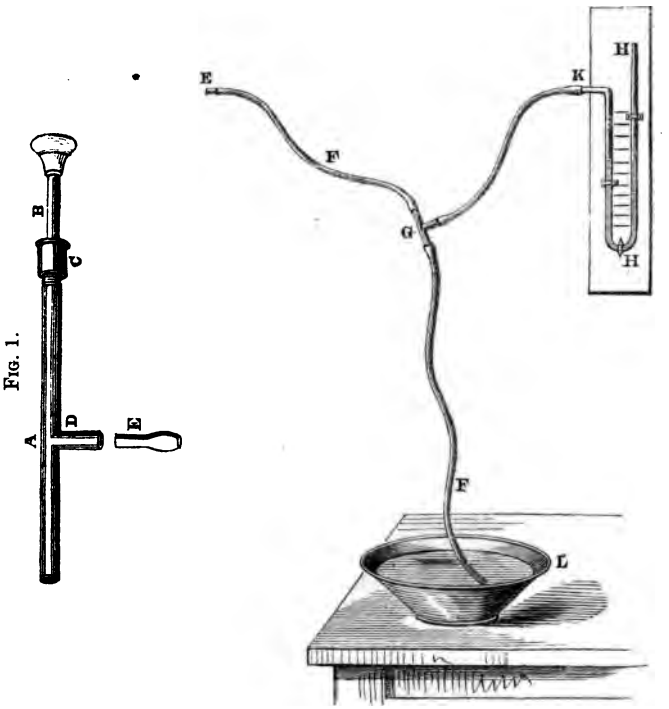


FIG. 1.

The whole apparatus must be carefully filled with water before being connected with the trochar, and the end of the tube F inserted into a basin of water. It is perhaps as well to mention that the point of junction of the tubing with the arm of the pressure-gauge should be as nearly as possible on a level with the opening of the chest, in order to test the pressure accurately, and that in order to ascertain at any stage of the operation the actual pressure within the pleura, the exit-tube should be pinched below the T-tube, G.

It is clear that the degree of syphon power used will depend upon the distance to which the basin, L, is lowered, and the length of the tube, E F F.

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* Mr. Hawksley, of Blenheim Street, Bond Street, has made the instrument for me in a very compact and convenient form.

Case I.

Thomas W., æt. 30, a policeman—a tall, well-developed man, of good previous health, with the exception of a slight cold, with which he was laid up for a few days in the winter of 1866. In November 1868 he had evening rigors, which lasted a fortnight; pain in the left side followed; he was confined to bed with the pain and a cough, and after the continuance of these symptoms for 12 days, he was admitted into St. George's Hospital, where he continued for 19 weeks. During this time his health improved, but he continued to cough and had hæmoptysis once. He then went to Walton, and continued to improve until the end of June 1869.

In July he came under the notice of Dr. Tatham at the Brompton Hospital, with marked signs of effusion into the left pleura. He was admitted into the Middlesex Hospital, under the care of Dr. Sanderson, August 14, 10 months after his first attack.

On admission the temperature was low; the respirations varied from 24 to 32 in the minute; the pulse was rather quick—88 to 112.

Left semi-circumference of chest measured 18½ in.
Right ditto ditto 18¼

There was no perceptible difference in the movements of the two sides. Dulness on percussion extended over the whole left side, reaching across the median line in front to the junction of the cartilages with their ribs. Cardiac impulse was felt in the 5th right space mammary line. The respiration sounds were annulled over the dull portion, exaggerated on the right side, with some harshness under the clavicle.

Dr. Sanderson proposed paracentesis, and was kind enough to use at my suggestion an apparatus similar to that above described, consisting i.e. of a trochar and canula, having a lateral branch, to which a piece of india-rubber tubing was attached, and to the distal end of this a T-tube, connected by one branch with a mercurial pressure-gauge, and by the other with more tubing the free end of which was conducted under water. The whole apparatus had been carefully filled with water.

The puncture was made in a valvular manner in the fifth space axillary region, and a thin purulent fluid escaped, the

mercury indicating a pressure of 1 inch. As the fluid escaped this pressure gradually diminished to $\frac{1}{4}$ in. The respiratory oscillations, at first less than $\frac{1}{8}$ in., deepened as pressure diminished to $\frac{3}{8}$ in.; $4\frac{1}{2}$ pints of fluid had now been removed, and the patient complaining of pain, the trochar was withdrawn, and the wound closed. The heart had returned towards its normal position to the extent of 2 inches, the patient was greatly relieved, and no febrile symptoms followed.

The fluid, however, gradually re-accumulated, and on August 29 he was again tapped in the same manner. This time a pressure of $\frac{1}{2}$ in. mercury* was noted, but though the mercurial oscillations clearly showed that the trochar was within the pleural cavity, the fluid did not flow, owing to some obstruction in the basin tube. This was detached and cleaned, and the basin lowered to the ground, when a free stream flowed. At first the respiratory undulations were shallow but gradually deepened; the difference between the levels of the two columns became $\frac{3}{8}$ in., $\frac{3}{10}$ in., and $\frac{1}{4}$ in., and, on checking the stream, $\frac{1}{2}$ in.; the surfaces next became level, and the mercury oscillated evenly with respiration. Finally, there was a decided negative pressure, and the mercury was drawn up $\frac{1}{2}$ an inch with inspiration, and did not become level on expiration, the fluid still flowing with a full stream. The tubing was now clipped; Dr. Sanderson immersed the basin tube into a vessel containing solution of tincture of iodine, 1 part in 2 of water, raised the vessel, thus reversing the syphon, and allowed 3 drachms to flow into the chest. The trochar was then withdrawn, and the wound closed, 63 oz. of fluid having been removed. No fever or pain followed; the patient's general health improved, but the fluid again gradually collected.

No air was admitted into the chest in either operation. The patient passed from under Dr. Sanderson's care. A drainage-tube was subsequently introduced; the patient went to Walton, and returned with bronchitis; he soon began to suffer from hectic, and died in December.

No post mortem was permitted.

The tubercular history and long duration of the empyema were unfavourable elements in this case.

* The actual pressure must have been a little higher than this—perhaps $\frac{3}{4}$ in. at this time—but it was not noted again immediately after the tube had been cleared; there may have been a flake of lymph partially blocking the tube.

Case II.

Thomas B., æt. 28, a labourer—a short, powerfully-built man, with a capacious well-formed chest—was admitted into the Brompton Hospital under the care of Dr. Pollock, October 4, 1869, with empyema of the right side of more than five years' duration. He had been in the hospital four years ago, and was tapped twice and returned to work. Two years ago he was again tapped, and left the hospital, still having some fluid in the pleura.

On his admission in October the right side was universally dull, the dulness extending at the level of the 2nd cartilage 1½ in. to left of sternum, and being continuous below with the cardiac and hepatic dulness. The apex of the heart beat 1½ in. to left of nipple in the sixth left interspace. Right semi-circumference, 18½ inches; left, 17⅝ inches; difference, ⅞ inch. On the left side, opposite the 2nd and 3rd cartilages, there was marked tubular respiration with increased vocal resonance. Paracentesis was performed November 20,* in the same manner as in the last case.

On introducing the trochar, a pressure of ½ in. of mercury was noted, which soon became *nil*, when the mercury oscillated evenly with respiration ½ in. movement. The column then became raised towards the pleura to the extent of 1 in., with ¾ in. movement. The basin was placed nearly 2 feet below the level of the patient, but the exit-tube was of course compressed while pressure observations were taken. The purulent fluid was still flowing in a full stream, when the patient became restless, with quickened and somewhat feeble pulse, and dragging pain in the region of the left sternum. On raising the basin to the level of the patient, the flow ceased and the pain also. Four pints had been removed, and it was thought prudent to desist. Three ounces of solution containing ½ oz. of tincture of iodine were then injected in the manner adopted by Dr. Sanderson in the former case; the trochar was withdrawn, the wound closed, and a bandage applied firmly round the chest to diminish the movements of the right side.

After the operation, the apex of the heart was found to

* He had also been tapped in the same way on October 5th, but only a small quantity of fluid was removed, and the observations were not so complete as those made November 20th.

beat under the left nipple; the resonance of the left lung reached the middle line; the *tubular breathing before heard had disappeared*, and some respiration with slight friction was heard in the right subclavicular region. The patient was much relieved.

No fever or other symptoms followed the injection of iodine, beyond slight pain in the right side, until November 27 and 28, when there was some malaise, and a temperature of 99°F., with herpes on the lip; but on the 30th these symptoms had subsided. On December 8 the right side was still larger than the left at the nipple level, but some retraction was noticed at the extreme base; abundant moist friction was heard over and on each side of the sternum. These friction sounds became less audible; on the 29th the right side measured $\frac{3}{4}$ in. less than the left at the extreme base. There has been up to the present time no re-collection of fluid, though there is still some present.

On July 6 the patient, having been at work as a smith since his discharge from the hospital, April 1, 1870, was examined by Dr. Pollock, and the following note taken:—

'Dulness on right side does not extend to right edge of sternum, but stops a little outside this. Respiration, mixed with crumpling sounds, is heard over front to about an inch below nipple, also in upper third of axillary region. Respiration heard posteriorly from apex to about level of half scapula, and along the spine. At base, no respiratory murmur. Heart's apex about sixth interspace, just outside nipple line. Liver drawn up under right lower ribs. In excellent health; is at work; complains of slight shortness of breath on exertion.'

This result is the best one could hope for in a case of so long standing; there is now probably but very little, if any, fluid in the right pleura. The right lung has enlarged considerably, and probably the drawing up of the liver is the reason of the heart not coming more over to the right.

I was under the impression at the time of using this instrument in the above-quoted cases that the principle of the syphon, as a means of getting rid of more fluid than would naturally flow without being replaced by air, and thus of inducing a greater tendency to the expansion of the collapsed lung and of the opposite lung, had not been adopted before. On looking, however, into Mr. Holmes's book on the 'Surgical Diseases of Children,' I found a somewhat full discussion

of the syphon plan, and was referred back to the 'Medical Gazette' for April 1850, for a paper read by Dr. Easton before the Liverpool Medical Society, in which he relates a case treated on the syphon principle. This gentleman washed out the chest with water, nearly all of which he drew off by means of a syphon, and soon afterwards the patient was seized with great pain in the chest, and threatened syncope, which was only relieved by unplugging the tube and allowing a rush of air into the pleura. Mr. Holmes condemns the practice on the strength of Dr. Easton's case, which, I think, showed too severe a use of the syphon power, and I hope Mr. Holmes may reconsider his verdict. The mercurial gauge which I have attached as an appendage to the syphon tube will, I think, prevent any danger of too greatly increasing the atmospheric pressure upon the walls of the pleural cavity and the cells of the opposite lung, by the removal of too much fluid, since it will clearly indicate the amount of this pressure.

In cases of recent pleurisy, at all events at the first tapping, I should be indisposed to recommend the employment of any appreciable syphon power with the view of emptying more thoroughly the pleural cavity; there is no object to be gained by doing this, for the remaining fluid is usually absorbed without difficulty, and the lung expands completely. In fact, M. Moutard Martin* strongly recommends only a small quantity of fluid to be removed in these cases. The necessary effect of employing syphon power to empty the chest is to produce a determination of blood to the pleural walls and the lung, thus favouring at least a temporary† re-accumulation of fluid; there is also the risk of the lung, as it expands, becoming injured by contact with the canula, and there is, perhaps, some risk of hæmorrhage into the pleura.

In cases of old empyema, where the lung is more or less bound down, or at least indisposed to expand, the removal by means of a syphon of a little more fluid than would naturally flow is useful in assisting the expansion of the lung (as seen in Case II.) or the falling in of the chest wall, whichever may most readily yield to the atmospheric pressure. Care must be taken, however, not to use too great

* 'Leçons sur la Thoracentèse,' Gazette des Hôpitaux, April 1867.

† I think I have seen this actually happen both in pleural and peritoneal effusions after ordinary tapping. The vessels being suddenly relieved from pressure, become engorged and yield more fluid, which, however, usually becomes speedily again absorbed.

a power, lest syncope or distress similar to that seen in Dr. Easton's case ensue.

Dr. Easton used an india-rubber bottle-syringe, which he attached to the middle of the tubing, for the purpose of washing out the pleura or of injecting any fluid into it. For these purposes, however, a much more gradual, and therefore less dangerous, flow of fluid into the chest will be obtained by simply inserting the free end of the tubing into the water or injection fluid, and inverting the syphon-action. In a child, at the Evelina Hospital, whose chest was full of fluid, on whom Mr. Willett kindly undertook to operate with my instrument, the trochar became stopped by a coagulum or flake of lymph, so that the fluid did not flow—though the trochar was clearly in the pleura, as the mercurial movements showed. To obviate this mishap, which is at any time likely to occur, the syphon-action might be reversed for a few moments; but I think a still better plan would be to have a small bottle-syringe, capable of holding two or three ounces of water, which may when necessary be attached to an additional branch of the T-tube, provided with a stop-cock. By rapidly squeezing the bottle and allowing it to expand again, the lymph might be readily displaced with only a momentary interruption of the operation.

With regard to the question of paracentesis, cases of fluid effusion into the pleura naturally divide themselves into—

1. Recent inflammatory effusions { serous / purulent.
2. Mechanical and dropsical effusions.
3. Old standing empyemas.

Opinions are very greatly divided as to the best time of operating in the first set of cases; and I imagine this class of cases to be the most important, for it seems hardly too much to hope that if they are thoroughly taken in hand and carefully treated from the first, chronic empyema secondary to acute idiopathic pleurisy will be a very rare disease.

I feel very strongly convinced of the correctness of the views of those who advocate early operation in cases of simple pleuritic effusion, i.e. when the quantity of fluid is considerable, and does not quickly begin to diminish on the subsidence of the acute symptoms. I think it is better to operate too early than too late, so as to give the lung no chance of becoming bound down by adhesions.

The following plain direction is laid down by Dr. Hamilton

Roe:* 'That as soon as it is clear that pleurisy is subdued, and that a large quantity of fluid remains in the chest, we should proceed at once to ascertain its quality by introducing the exploring needle (invented by Sir B. Brodie), and if it is found to be purulent, the operation should forthwith be performed, because it is very far from being desirable that pus should be absorbed into the circulation, or prevent by its presence the adhesion of the pleura. If it is found to be serous, we may wait till the end of the third week to see if medicine will cause absorption to proceed rapidly; and if it does not, the operation should not be deferred.'

In cases of acute inflammatory effusion, where, from the irregularly high temperature, severe general symptoms, and hectic, the fluid is judged to be purulent (or ascertained to be so by puncture with a grooved needle), it is, I think, a very debatable point whether it is best to operate early or to wait for a little while, provided no urgent symptoms present themselves, so as to give an opportunity for the febrile symptoms to subside. I cannot venture any opinion on this point, but should feel disposed myself to take an early opportunity of operating. Trousseau recommends the injection of iodine in these cases, and also in cases of serous effusion which, after operation, become purulent.

The pleura being a closed cavity, there can be no possible object in selecting the lowest spot for puncture at considerable risk of perforating the diaphragm, unless it is decided to admit the air, when, of course, the more dependent the aperture the more fluid will escape. Mr. Holmes's suggestion seems an admirable one—that safety should be first considered in determining the seat of puncture, its position being in other respects of but little consequence.

The pain of the operation is really insignificant; but, if necessary, the seat of puncture may be readily anæsthetised by holding firmly to it a piece of ice which has been dipped in salt. Where ice can be obtained this plan is preferable to the use of the ether spray.

There has been much discussion of late in Paris as to the importance of avoiding the admission of air into the pleura during operation, and opinions are still very divided among English physicians and surgeons on this subject, some regarding it as of no consequence at all, others of the gravest moment. M. Moutard Martin considers this difference of

* Med. Chir. Trans., 1844, p. 222.

opinion due to the fact that air admitted into a healthy pleura is very readily absorbed, while in a diseased and thickened pleura the reverse is the case. It is probable that surgeons think more lightly than physicians of admitting air into the pleura in paracentesis, because they often see in surgical pneumothorax, when the pleura is healthy, how readily the air is re-absorbed. It appears to me on every ground most important that every precaution should be taken to prevent the entrance of air, and I think it can be prevented with great certainty. It is true that the pleura does not become so greatly altered in a few weeks but that it will absorb air with tolerable readiness; still, it can scarcely do so unless this air is replaced by fluid, for it is mechanically impossible, from the great elasticity of air, for the lung to expand while it is present in the pleura. From the irritation almost always caused by the presence of air in the pleura, fresh effusion takes place, compressing it into small compass, so that it can only be found by careful examination, and causing it finally to become absorbed. In cases of old-standing empyema the air is absorbed with much greater difficulty, and so long as it is present the patient is in the chief respect for which the operation was performed worse off than before. The further danger, in both old and recent cases, of air setting up decomposition in the remaining fluid cannot be ignored. Finally, we clearly have no right to expose a patient to any additional risk by the introduction of a foreign element concerning the innocuousness of which there is the slightest question.

In cases of mechanical and dropsical effusions necessity alone determines the operation.

With regard to old-standing empyemas—which I trust may become soon matters of history—repeated tappings, with the careful use of suction-power by means of a syphon arrangement and injections of iodine, or washing out by other fluids by the same means, are the methods I should be disposed to give a fair trial to before employing the drainage-tube. When this method of treatment fails, however, a totally different plan has to be adopted. With the drainage-tube a double opening, permitting the free entry and exit of air, is necessary, and it becomes of importance to have the second opening as low as possible, in order to ensure the ready escape of fluid from the pleural cavity.

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